

**UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN**

NALCO COMPANY LLC, ECOLAB INC.,
HAZELMERE RESEARCH LTD., ECOLAB
USA INC., NALCO HOLDING COMPANY,
NALCO U.S. 2 INC., AND MOBOTEC AB,
LLC,

Plaintiffs,

v.

WISCONSIN POWER AND LIGHT
COMPANY, WISCONSIN PUBLIC SERVICE
CORPORATION, MADISON GAS AND
ELECTRIC COMPANY, d/b/a COLUMBIA
ENERGY CENTER (UNIT 1), and PORTAGE
FUELS COMPANY LLC,

Defendants.

WISCONSIN POWER AND LIGHT
COMPANY, WISCONSIN PUBLIC SERVICE
CORPORATION, MADISON GAS AND
ELECTRIC COMPANY, d/b/a COLUMBIA
ENERGY CENTER (UNIT 1), and PORTAGE
FUELS COMPANY LLC,

Counterclaimants,

v.

NALCO COMPANY LLC and HAZELMERE
RESEARCH LTD.,

Counterclaim Defendants.

Civil Action No.: 3:18-CV-280

**DEFENDANTS' RESPONSE TO PLAINTIFFS' CORRECTED PROPOSED FINDINGS
OF FACT IN SUPPORT OF THEIR MOTION FOR PARTIAL SUMMARY JUDGMENT**

1. U. S. Patent No. 6,808,692 (“the ’692 Patent” or “the Oehr Patent”) claims a process for removing mercury from the flue gas emissions of coal-fired power plants by injecting an additive into the flue gas which leads to the capture of mercury in that same flue gas and its filtration from the plant’s emissions. Dkt. 38-1, ’692 Patent.

Objection: Pl. PFF¹ ¶ 1 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located. Additionally, Pl. PFF ¶ 1 is vague and ambiguous. Plaintiffs have not defined “additive,” “the flue gas” or “injecting,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “the flue gas” and “injecting” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion.

Response: Disputed as unsupported and contrary to the evidence. The requirements of the claims of the ’692 Patent are set forth in those claims. Pl. PFF ¶ 1 does not quote the language of any claim and uses language not present in the claims. For example, Pl. PFF ¶ 1 uses the terms “additive” and “filtration,” but none of the claims of the ’692 Patent uses those terms. D.I. # 38-1, ’692 Patent, 2:42–4:26.²

2. Plaintiffs assert infringement of independent claims 1 and 19 and dependent claims 8–12, 14–18, 22–29 of the ’692 Patent. Dkt. 38, Plaintiffs’ Second Amended Complaint for Patent Infringement, ¶¶ 133-160; Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 2, 149-348, Dkt. 78-26 Plaintiffs’ Infringement Contentions; Dkt. 90, Declaration of Andrew Fry;³ *passim*.

Response: Undisputed.

¹ Plaintiffs’ proposed findings of fact are referred to as “Pl. PFF.”

² All docket citations are to Case 279 unless otherwise noted.

³ On April 15, 2019, Plaintiffs filed a declaration on behalf of Andrew Fry, Ph.D. (“Fry

3. Plaintiff Nalco Company (“Nalco”) is a leading provider of air protection technologies, and, in particular, technologies for removing hazardous mercury from flue gases resulting from the combustion of coal in coal-fired power plants. Dkt. 67, Deposition of John Meier.

Objection: Pl. PFF ¶ 3 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported and contrary to the evidence. Taken in its entirety, the transcript of Meier’s Feb. 12, 2019 deposition does not support the stated proposition. Moreover, to the contrary, Meier’s testimony supports the conclusion that Nalco is unable to compete in the mercury-reduction business. D.I. # 67, Meier Dep. (Feb. 12, 2019) 115:5–116:24. Additional evidence shows that Nalco has struggled to compete in the mercury-reduction business. D.I. # 89-1, Lawton Report ¶ 58.

4. Plaintiff Nalco’s technologies deliver environmental, social and economic benefits to its customers. Dkt. 67, Deposition of John Meier.

Objection: Pl. PFF ¶ 4 is vague and ambiguous. Plaintiffs have not defined “technologies,” “deliver,” “social,” or “benefits,” and it is not clear how the terms are being used in this asserted fact. Pl. PFF ¶ 4 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is

Declaration”) stating that he declares under penalty of perjury that the Expert Reports and exhibits filed in this litigation are true and correct, subject to and including two corrections made on the record during his April 8, 2019 deposition. Dkt. 90, Fry Declaration. The Fry Declaration is incorporated by reference for each of the citations made to Dr. Fry’s expert reports.

located.

Response: Disputed as unsupported and contrary to the evidence. Taken in its entirety, the transcript of Meier’s Feb. 12, 2019 deposition does not support the stated proposition. For example, neither the word “environmental” nor the word “social” appear in Meier’s deposition transcript. Further, when Meier was asked what benefits Plaintiffs’ clients received from Plaintiffs’ approach, Meier said that it “varies [from] site to site.” D.I. # 67, Meier Dep. (Feb. 12, 2019) 180:11–18.

5. Nalco is the exclusive licensee of the ’692 Patent, entitled “Enhanced Mercury Control in Coal-Fired Power Plants.” Dkt. 38-1 (’692 Patent); Dkt. 40 (Plaintiffs’ Proof of Standing to Assert Patent Infringement) at pp. 2–3; Dkt. 41-1–41-17.

Response: Disputed. Nalco is not “the exclusive licensee of the ’692 Patent.” The record evidence shows that Nalco never received a valid exclusive license to the ’692 Patent because the patent was previously exclusively licensed. D.I. # 113, Def. PFF ¶¶ 60–74⁴ (D.I. # 40-5, GNE License Agreement (Jan. 28, 2002); D.I. # 69, Oehr Dep. 205:14–206:1, 206:14–207:7, 207:18–208:22, 209:5–10, 210:7–211:24, 212:19–213:2; D.I. # 47, Oehr Decl. (Aug. 24, 2018) at ¶¶ 2–4). Additionally, the cited evidence is not properly authenticated or sponsored by sworn testimony. Accordingly, to the extent this evidence is offered to prove that Nalco is “the exclusive licensee of the ’692 Patent,” it is inadmissible hearsay and should be excluded per Fed. R. Evid. 802. Undisputed that the ’692 Patent is entitled “Enhanced Mercury Control in Coal-Fired Power Plants.”

6. Klaus Oehr is the inventor of the ’692 Patent. Dkt. 38-1, ’692 Patent.

Response: Disputed. Oehr is the named inventor of the ’692 Patent, but Oehr is not “the inventor” of the claimed invention of the ’692 Patent, because the ’692

⁴

Defendants’ proposed findings of fact are referred to as “Def. PFF.”

Patent claims are directed to natural phenomena for which there is no inventor and there is no new or non-obvious invention claimed in that patent. D.I. # 113, Def. PFF ¶ 342 (D.I. # 38-1, '692 Patent at Abstract, Claims 1 and 19; D.I. # 38-3, Oehr Decl. (May 17, 2016) ¶ 7); D.I. # 113, Def. PFF ¶¶ 443–448 (D.I. # 81, First Wilcox Report ¶¶ 154, 207, 210; D.I. # 79, Second Fry Report ¶¶ 168, 217).

Furthermore, to the extent the cited evidence is offered to prove that Oehr is the inventor of the '692 Patent or the claimed invention, the evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

7. Klaus Oehr assigned his patent to his company, Hazelmere Research, Ltd., who in turn granted an exclusive license to Nalco. Dkt. 38-1, '692 Patent; Dkt. 40, Plaintiffs' Proof of Standing to Assert Patent Infringement, pgs. 2–3; Dkt. 38-1, '692 Patent and 38-3, Declaration of Klaus Oehr, ¶¶ 1–3.

Objection: Pl. PFF ¶ 7 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed in part. Disputed that Hazelmere granted "an exclusive license to Nalco" because the record evidence shows that Nalco never received a valid exclusive license to the '692 Patent. D.I. # 113, Def. PFF ¶¶ 60–74 (D.I. # 40-5, GNE License Agreement (Jan. 28, 2002); D.I. # 69, Oehr Dep. 205:14–206:1, 206:14–207:7, 207:18–208:22, 209:5–10, 210:7–211:24, 212:19–213:2; D.I. # 47, Oehr Decl. (Aug. 24, 2018) ¶¶ 2–4). Undisputed that "Oehr assigned his patent to his company, Hazelmere Research, Ltd."

8. Since licensing the technology of the '692 Patent, Nalco has spent considerable time and resources developing the market for mercury removal technologies covered by the '692 Patent, which have been adopted widely in the coal-fired power plant industry. Dkt. 67, Deposition of John Meier.

Objection: Pl. PFF ¶ 8 is vague and ambiguous. Plaintiffs have not defined

“the technology of the ’692 Patent,” “considerable time and resources,” “the market for mercury removal technologies,” or “adopted widely,” and it is not clear how the terms are being used in this asserted fact. Furthermore, Pl. PFF ¶ 8 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located, and Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as unsupported and contrary to the evidence. Taken in its entirety, the transcript of Meier’s Feb. 12, 2019, deposition does not support the stated proposition. Moreover, to the contrary, Meier’s testimony supports the conclusions that Nalco has not developed the market for mercury removal technologies covered by the ’692 Patent and that mercury removal technologies covered by the ’692 Patent have not been adopted widely in the coal-fired power plant industry. D.I. # 67, Meier Dep. (Feb. 12, 2019) 115:5–116:24; D.I. # 89-1, Lawton Report ¶ 58.

9. Columbia Energy Center Unit 1 is a commercial coal-fired power plant located at W8375 Murray Road, Pardeeville Wisconsin. Dkt. 38, Plaintiffs’ Second Amended Complaint for Patent Infringement, ¶ 21; Dkt. 54, Defendants’ Answer to Plaintiffs’ Second Amended Complaint for Patent Infringement, ¶ 21 and Counterclaims at ¶ 5.

Response: Undisputed.

10. Columbia Energy Center Unit 1 is owned and operated by Wisconsin Power and Light Company (“WPL”), Wisconsin Public Service Corporation (“WPS”) and Madison Gas and Electric Company (“MGE”). Dkt. 38, Plaintiffs’ Second Amended Complaint for Patent Infringement, ¶ 21; Dkt. 54, Defendants’ Answer to Plaintiffs’ Second Amended Complaint for Patent Infringement, ¶ 21; Dkt. 86, Expert Report of Walter Bratic, dated February 7, 2019, ¶¶

18–21; Dkt. 91, Bratic Declaration.⁵

Response: Undisputed.

11. WPL operates Columbia Energy Center Unit 1. Dkt. 38, Plaintiffs’ Second Amended Complaint for Patent Infringement, ¶ 21; Dkt. 54, Defendants’ Answer to Plaintiffs’ Second Amended Complaint for Patent Infringement, ¶ 21.

Response: Undisputed.

12. Columbia Energy Center Unit 1 carries out the infringing process. Dkt. 78 Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 151–348.

Objection: Pl. PFF ¶ 12 is vague and ambiguous. Plaintiffs have not defined “the infringing process,” and it is not clear how the term is being used in this asserted fact. Additionally, Pl. PFF ¶ 12 also violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I, because it asserts a conclusion of law, not a factual proposition and it uses legal characterization with a reference to “infringing process,” and Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed. Plaintiffs cannot meet their burden to prove infringement because no process carried out by Defendants practices the claimed invention. D.I. # 82, Second Wilcox Report, § VII; D.I. # 113, Def. PFF ¶ 840 (D.I. # 78, First Fry Report ¶¶ 164–165).

13. Defendants’ use of the Chem-Mod Process involves the injection of pulverized Refined Coal, where the Refined Coal is sold to Columbia Unit 1 by Defendant Portage Fuels LLC (“Portage”). Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 162–64; Dkt. 86, Expert Report of Walter Bratic, dated February 7, 2019, ¶¶ 51–61; C. Klingman Decl. ¶ 3 (Exhibit 2) (PORTAGE_00000301–328, Coal Feedstock Purchase Agreement), ¶ 4 (Exhibit 3) (PORTAGE_00000187–235, Refined Coal Agreement), ¶ 5 (Exhibit 4) (PORTAGE_00000236–300, License and Services Agreement), ¶ 6 (Exhibit 5) (PORTAGE_00000334–362, Coal Handling and Administration Agreement), and ¶ 7 (Exhibit 6)

⁵ On April 15, 2019, Plaintiffs filed a declaration on behalf of Walter Bratic (the “Bratic Declaration”) stating that he declares under penalty of perjury that his Expert Reports and exhibits filed in this litigation are true and correct. Dkt. 86, Bratic Declaration. The Bratic Declaration is incorporated by reference for each of the citations made to Mr. Bratic’s expert reports.

(PORTAGE_00000162–186, Environmental Indemnity Agreement). Reference to conduct by Defendant Portage herein conducted by Portage Fuels LLC at least up to and including July 13, 2018 and, thereafter, was conducted using equipment owned by Portage and leased by a company referred to as Erie Fuels LLC. Dkt. 78-26 at n. 4.

Objection: Pl. PFF ¶ 13 is vague and ambiguous. Plaintiffs have not defined “the Chem-Mod Process,” “Refined Coal,” or “injection,” and it is not clear how the terms are being used in this asserted fact. Also, the term “injection” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Pl. PFF ¶ 13 also violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed in part. Disputed that there is a joint use of Refined Coal by the “Defendants.” Further disputed that “Columbia Unit 1” purchased Refined Coal because WPL purchased all the Refined Coal Portage produced. D.I. # 113, Def. PFF ¶¶ 808–816 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 8, WPL – Portage Coal Feedstock Purchase Agreement (Sept. 6, 2016); D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 9, WPL – Portage Refined Coal Supply Agreement (Sept. 6, 2016); D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 10, WPL – Portage Coal Handling and Administration Agreement (Sept. 6, 2016); D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 11, WPL – Portage License and Services Agreement (Sept. 6, 2016); Mark Decl. (Apr. 16, 2019) Ex. 7, Portage Assignment and Assumption Agreement (July 31, 2018); D.I. # 38, SAC ¶ 25; D.I. # 54, Answer to SAC ¶ 25; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 137, Portage Fuels Financial Spreadsheet, at PORTAGE_00000001-1–001-3; D.I. # 62, Berkimer

Dep. 91:6–92:9; 137:11–138:5). Portage does not direct operations at Columbia Unit 1, and Columbia Unit 1 does not direct operations at Portage. D.I. # 113, Def. PFF ¶¶ 833–835 (D.I. # 73, Whittaker Dep. 39:6–40:24; D.I. # 65, Kaminski Dep. 63:17–64:18; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 9, Portage – WPL Refined Coal Supply Agreement, § 8.5, Testing and Suspension; D.I. # 73, Whittaker Dep. 39:6–40:24); D.I. # 113, Def. PFF ¶ 828 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 9, WPL – Portage Refined Coal Supply Agreement (Sept. 6, 2016) Exhibit C, Operating Protocols; D.I. # 66, Lokenvitz Dep. 242:13–17; D.I. # 89–1, Lawton Report ¶ 207). The sentence referencing “Erie Fuels LLC” is incomprehensible and therefore disputed. Undisputed that the use of Refined Coal as Defendants understand the term at Columbia Unit 1 involves pulverizing and burning said coal, that Portage sold Refined Coal for combustion in Columbia Unit 1, and that the Chem-Mod Process is a method for preparing Refined Coal.

14. Defendant Portage purchases raw untreated coal, and treats the coal by adding two additives to create Refined Coal. Dkt. 86, Expert Report of Walter Bratic, dated February 7, 2019, ¶¶ 53, 54-55; C. Klingman Decl. ¶¶ 3, 4 (Exhibits 2 & 3) (PORTAGE_00000301-328, The Coal Feedstock Purchase Agreement) and (PORTAGE_00000187–235, Refined Coal Supply Agreement); Dkt. 73, Deposition of Gary Whittaker, December 6, 2018, pg. 21:2–17.

Objection: Pl. PFF ¶ 14 is vague and ambiguous. Plaintiffs have not defined “raw untreated coal” and it is not clear how the term is being used in this asserted fact. Additionally, Pls.’ PFF ¶ 14 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph. Furthermore, Pl. PFF ¶ 14 is duplicative of Pl. PFF ¶¶ 142, 830.

Response: Disputed in part as unsupported. Portage does not currently purchase raw untreated coal or treat such coal with additives because Portage

assigned its Refined Coal facility, and its rights and obligations under the Feedstock Purchase Agreement and the Refined Coal Supply Agreement, to non-party Erie Fuels Company, LLC. D.I. # 113, Def. PFF ¶ 33 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 7, Portage Assignment and Assumption Agreement (July 31, 2018)).

15. The Chem-Mod additives used to create Refined Coal are called MerSorb and S-Sorb. Dkt. 86, Expert Report of Walter Bratic, dated February 7, 2019, ¶ 54; C. Klingman Decl. ¶ 4 (Exhibit 3) (PORTAGE_00000187–235, Refined Coal Supply Agreement), pg. 230; Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 162.

Response: Undisputed.

16. MerSorb is a liquid solution consisting of calcium bromide and water. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 138; C. Klingman Decl. ¶¶ 4 & 8 (Exhibits 3 & 7) (PORTAGE_00000187–235, Refined Coal Supply Agreement), pg. 231, (Whittaker Depo. Exhibit 16, Material Safety Data Sheet – MerSorb).

Response: Undisputed.

17. S-Sorb is a dry-powder made up of kiln dust from cement plants that consists of an assortment of alkaline solids. Dkt. 72, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 139; and Dkt. 84-1, Exhibit AC (Material Data Safety Sheet – S-Sorb).

Response: Undisputed.

18. S-Sorb is a dry-powder made up of kiln dust from cement plants that consists of an assortment of alkaline solids. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 139; C. Klingman Decl. ¶ 9 (Exhibit 8) (Whittaker Exhibit 17 – Material Safety Data Sheet – S-Sorb III).

Response: Undisputed to the extent “Chem-Mod Process” has the meaning understood in Pl. PFF ¶ 19.

19. Chem-Mod licenses the use of these chemicals for use in manufacturing Refined Coal, in what is called “the Chem-Mod Process” or “the Chem-Mod Solution.” Dkt. 86, Expert Report of Walter Bratic, dated February 7, 2019, ¶¶ 99–101; C. Klingman Decl. ¶ 10 (Exhibit 9) (PORTAGE_00000400–448, Chem-Mod/Portage Fuels License Agreement).

Response: Undisputed to the extent “these chemicals” refer to MerSorb and S-Sorb.

20. Defendant Portage is one such licensee. Dkt. 86, Expert Report of Walter Bratic, dated February 7, 2019, ¶¶ 99–101; C. Klingman Decl. ¶ 10 (Exhibit 9) (PORTAGE_00000400-448, Chem-Mod/Portage Fuels License Agreement).

Response: Undisputed to the extent “such licensee” refers to a licensee of the Chem-Mod Solution.

21. Chem-Mod developed the Chem-Mod Solution for the purpose of satisfying certain tax law requirements to qualify for tax credits. Dkt. 38-19 (Exh. O, Production of Refined Coal using the Chem-Mod Process), pg. 1; Dkt. 38-24 (Exh. T, PowerPoint titled “Clean Energy Investments Conference Call,” April 11, 2012).

Objection: Pl. PFF ¶ 21 is vague and ambiguous. Plaintiffs have not defined “certain tax law requirements,” and it is not clear how the term is being used in this asserted fact. Additionally, Pl. PFF ¶ 21 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported and contrary to the evidence. Taken in their entirety, the cited documents—which consist only of unauthenticated attachments to Plaintiffs’ complaint—are inadmissible and do not support the stated proposition. Chem-Mod did not develop “the Chem-Mod Solution for the purpose of satisfying certain tax law requirements to qualify for tax credits.” D.I. # 71, Batanian Dep. 20:21–24:15. Rather, Chem-Mod developed the “Chem-Mod Solution” as an investment opportunity for commercializing a technology that was introduced to Chem-Mod. D.I. # 113, Def. PFF ¶ 480 (D.I. # 63, Comrie Dep. 67:10–16; D.I. # 71, Batanian Dep. 32:25–34:9).

22. Chem-Mod itself does not own and operate infringing facilities. Dkt. 38-19 (Exh. O, Production of Refined Coal using the Chem-Mod Process), pg. 1; Dkt. 38-24 (Exh. T, PowerPoint titled “Clean Energy Investments Conference Call,” April 11, 2012).

Objection: Pl. PFF ¶ 22 is vague and ambiguous. Plaintiffs have not defined “infringing facilities,” and it is not clear how the term is being used in this

asserted fact. Furthermore, Pl. PFF ¶ 22 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I, because it uses legal characterization with a reference to “infringing facilities,” and Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed in part. Disputed that Defendants’ facilities are “infringing” because no process carried out by Defendants practices the claimed invention. D.I. # 82, Second Wilcox Report § VII; D.I. # 113, Def. PFF ¶ 840 (D.I. # 78, First Fry Report ¶¶ 164–165). Undisputed that Chem-Mod itself does not own or operate facilities that make or use Refined Coal.

23. Chem-Mod licenses its Chem-Mod Process technology. Dkt. 86 (Expert Report of Walter Bratic, dated February 7, 2019), ¶¶ 99–101; C. Klingman Decl. ¶ 10 (Exhibit 9) (PORTAGE_00000400-448, Chem-Mod/Portage Fuels License Agreement).

Response: Undisputed to the extent “Chem-Mod Process” has the meaning understood in Pl. PFF ¶ 19.

24. Chem-Mod licenses its Chem-Mod Process technology to Portage. Dkt. 86 (Expert Report of Walter Bratic, dated February 7, 2019), ¶¶ 99–101; C. Klingman Decl. ¶ 10 (Exhibit 9) (PORTAGE_00000400-448, Chem-Mod/Portage Fuels License Agreement).

Response: Undisputed to the extent “Chem-Mod Process” has the meaning understood in Pl. PFF ¶ 19.

25.

[REDACTED]

[REDACTED]

[REDACTED]

26.

[REDACTED]

[REDACTED]

[REDACTED]

27. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

28. The application that resulted in the '692 Patent was filed on February 14, 2002, and the patent issued on October 24, 2004 to inventor Klaus H. Oehr. Dkt. 38-1, '692 Patent; Dkt. 54, Defendants' Answer to Plaintiffs' Second Amended Complaint for Patent Infringement, ¶ 33.

Objection: Pl. PFF ¶ 28 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed in part. Disputed that the patent issued on October 24, 2004, and that the inventor is Oehr. Rather, the record shows that the patent issued on October 25, 2004, and that the named inventor is Oehr. D.I. # 38-1, '692 Patent. Undisputed that the application that resulted in the '692 Patent was filed on February 14, 2002.

29. The '692 Patent was subsequently reexamined during an Inter Partes reexamination by the United States Patent and Trademark Office ("USPTO"), and a Reexamination Certificate was issued on April 7, 2014. Dkt. 38-1, '692 Patent, at Inter Partes Reexamination Certificate; Dkt. 54, Defendants' Answer to Plaintiffs' Second Amended

Complaint for Patent Infringement, ¶ 33.

Objection: Pl. PFF ¶ 29 is duplicative of Pl. PFF ¶ 167.

Response: Undisputed.

30. The '692 Patent explains that the claimed invention “relates to a method of reducing the mercury emissions for coal-fired power plants.” Dkt. 38-1, '692 Patent, 1:7-8; Dkt. 54, Defendants' Answer to Plaintiffs' Second Amended Complaint for Patent Infringement, ¶ 33.

Response: Undisputed that the '692 Patent contains the quoted language; that does not make the statement admissible for all purposes, however.

31. Defendants' expert, Dr. Wilcox, testified that “the patent is drawn to a method [of] reducing mercury emissions from coal-burning power plants by treating the coal combustion flue gas.” Dkt. 81, First Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 65; Dkt. 89, Declaration of Jennifer L. Wilcox.

Response: Undisputed that Wilcox testified as quoted above; that does not make the testimony admissible for all purposes, however.

32. *Steam* is published periodically by Babcock & Wilcox, one of the largest manufacturers in the world of boilers for use in coal-fired power plants.³ <https://www.babcock.com/resources/steam-its-generation-and-use>. *Steam: Its Generation and Use*, 40th Edition includes the following figure:

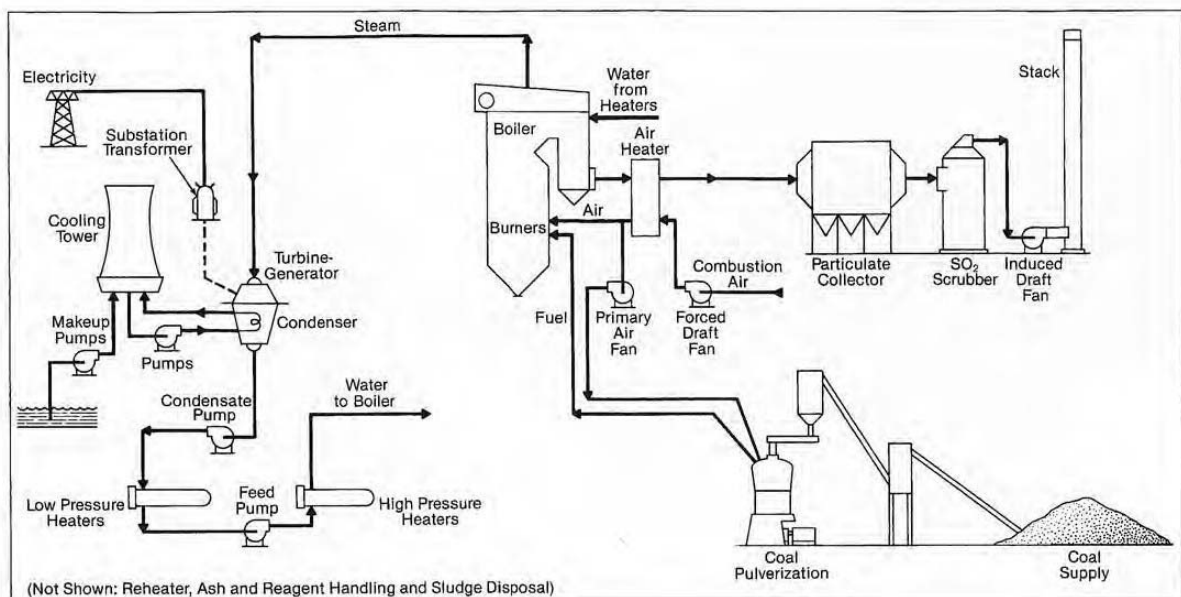


Fig. 7 Coal-fired utility power plant schematic.

Dkt. 35-15 (*Steam: Its Generation and Use* (“*Steam*”), 40th Edition, Figure 7).

Objection: Pl. PFF ¶ 32 violates the Court’s Standing Order on Motions for

Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Undisputed that *Steam* contains Figure 7; that does not make *Steam* or Figure 7 admissible for all purposes, however.

33. Mr. Comrie, the inventor of the Chem-Mod process used by Defendants, agreed that Babcock & Wilcox was at one time “the largest boiler manufacturer in the world.” Dkt. 63, Deposition of Douglas Comrie at 206:15-17.

Objection: Pl. PFF ¶ 33 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed in part. Disputed that the Chem-Mod process is used by all Defendants because neither Portage nor Arbor burned Refined Coal.

D.I. # 113, Def. PFF ¶¶ 803, 805, 831, 833 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 4, Arbor-WPS Refined Coal Supply Agreement (July 8, 2016), Article I, Definitions, Article 7.4, Title and Risk of Loss; D.I. # 89-1, Lawton Report (March 13, 2019) ¶ 409; D.I. # 70, Panczak Dep. 152:4–153:1; 279 Case D.I. # 59, Hujet Dep. 24:10–13; 279 Case D.I. # 65, Raleigh Dep. 32:13–19; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 9, WPL-Portage Refined Coal Supply Agreement (Sept. 6, 2016), at Article I, Definitions, Exhibit A, Delivery Points; D.I. # 73, Whittaker Dep. 39:6–40:24). Undisputed that Comrie is the inventor of the Chem-Mod process, to the extent “Chem-Mod Process” has the meaning understood in Pl. PFF ¶ 19, and that Comrie agreed that Babcock & Wilcox was at one time “the largest boiler manufacturer in the world.”

34. Dr. Wilcox relies on *Steam* at least a portion of her expert report. Dkt. 81, First Expert Report of Jennifer Wilcox, Ph.D., Dkt. 82, Second Expert Report of Jennifer Wilcox, Ph.D.

Objection: Pl. PFF ¶ 34 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed in part. Wilcox cites *Steam* in her expert report, but only to demonstrate a “[c]oal-fired power plant schematic with various pollution control devices.” D.I. # 81, First Wilcox Report ¶ 41. Moreover, in the Second Wilcox Report, Wilcox criticizes and rejects *Steam* as support for Plaintiffs’ claim construction. D.I. # 82, Second Wilcox Report ¶ 46.

35. Dr. Fry relies on *Steam* for at least a portion of his expert report. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D., Dkt. 79, Second Expert Report of Andrew Fry, Ph.D., Dkt. 80, Third Expert Report of Andrew Fry, Ph.D.

Response: Undisputed.

36. Figure 7 of *Steam* is titled “Coal-fired utility power plant schematic.” Dkt. 38-15, *Steam: Its Generation and Use*, 40th Edition, Figure 7.

Response: Undisputed that Figure 7 of *Steam* is so titled; that does not make *Steam* or the Figure admissible for all purposes, however.

37. Figure 7 of the *Steam* article depicts the operation of a coal-fired power plant. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 49; Dkt. 38- 15, *Steam: Its Generation and Use*, 40th Edition, Figure 7.

Response: Disputed as unsupported. The cited documents—which consist of Plaintiffs’ expert report and an article Plaintiffs’ expert cites to—do not support the stated proposition. The schematic does not mention “the operation” of a coal-fired power plant, and the figure is a stylized depiction of one type of hypothetical power plant. The cited paragraph of the First Fry Report describes the figure as “[a] diagram of the components in *a typical* coal-fired power plant.” (emphasis added).

38. A coal-fired power plant has a steam generation portion, which generates steam

that in turn is delivered to a steam utilization portion where the steam is utilized to drive a turbine that produces electricity, which is sent out over power lines. Dkt. 38-15, *Steam: Its Generation and Use*, 40th Edition, Figure 7.

Objection: Pl. PFF ¶ 38 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported. Pl. PFF ¶ 38 does not quote the language of *Steam* and uses language not present in the article. For example, Pl. PFF ¶ 38 uses the terms “steam utilization” and “power lines,” but the article does not reference these terms at all. Additionally, Pl. PFF ¶ 38 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite to Figure 7 of *Steam*, which is not properly authenticated or sponsored by sworn testimony. Accordingly, this evidence is inadmissible hearsay and an undisclosed and unqualified expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c), Fed. R. Evid. 702, and Fed. R. Evid. 802.

39. In a typical coal-fired power plant, there is a boiler where the steam is generated. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 55, 59; Dkt. 38-15, *Steam: Its Generation and Use*, 40th Edition, Figure 7.

Objection: Pl. PFF ¶ 39 is vague and ambiguous. Plaintiffs have not defined “typical,” and it is not clear how the term is being used in this asserted fact.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—paragraphs 55 and 59 of the First Fry Report—does not support the asserted fact that there is a boiler where the “steam is generated.” Rather, the record shows that steam is generated in a steam drum. D.I. # 38-15, *STEAM: ITS GENERATION AND USE*, at 1-6.

40. The heat to generate the steam is created by burning coal in the furnace of the boiler. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 55, 59; Dkt. 38-15, Steam: Its Generation and Use, 40th Edition, Figure 7.

Response: Undisputed.

41. At a typical coal-fired power plant, the coal is received from the mine via rail, truck, or ship and stockpiled at coal supply. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 51.

Response: Undisputed.

42. From the stock-pile, the coal is sent to a building where equipment is used to crush the coal (the “crusher house”). Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 52.

Response: Undisputed.

43. In the crusher house, the coal size is reduced from approximately 4” or less, down to approximately ½” or less. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 52.

Response: Undisputed with respect to a typical crusher house. To clarify, the record shows that at Weston and Columbia, “unrefined coal is dropped into the crusher house where it is crushed to the size of approximately three-quarter inch minus and mixed with MerSorb and S-Sorb.” D.I. # 78, First Fry Report ¶ 163.

44. From a hopper in the crusher house, the crushed coal then travels by conveyor belt into the power plant where it is stored in one or more silos called coal bunkers. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 53.

Objection: Pl. PFF ¶ 44 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported in part. Disputed that silos are called coal bunkers. Fry’s opening expert report does not use the term “coal bunkers” in the report. D.I. # 78, First Fry Report. Undisputed that from a hopper in the crusher

house, the crusher coal then travels by conveyor belt into the power plant where it is stored in one or more silos.

45. The silos are typically designed to store approximately 8 hours' worth of fuel. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 53.

Objection: Pl. PFF ¶ 45 is vague and ambiguous. Plaintiffs have not defined "[t]he silos," and it is not clear how the term is being used in this asserted fact.

Response: Undisputed. To clarify, a coal-fired power plant will have several silos to store coal. D.I. # 78, First Fry Report ¶ 53. In a typical plant, all of the silos together will have the capacity to store approximately eight hours' worth of fuel. A single silo does not typically have the capacity to store eight hours' worth of fuel. *Id.*

46. Below the coal bunkers, there are coal feeders which feed coal from the bunkers into pulverizers. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 54.

Objection: Pl. PFF ¶ 46 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported in part. Pl. PFF ¶ 46 uses the term "bunkers," but Fry does not use that term in his first expert report. It is undisputed that "[b]elow the coal" silos, "there are coal feeders which feed coal from the" silos "into pulverizers." D.I. # 78, First Fry Report ¶ 54.

47. In the pulverizers, the coal is reduced in size from ½" or less to a chalk dust consistency. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 54.

Response: Disputed. This statement is not true for Weston and Columbia. The record shows that at Weston and Columbia, "unrefined coal is dropped into

the crusher house where it is crushed to the size of approximately three-quarter inch minus and mixed with MerSorb and S-Sorb.” D.I. # 78, First Fry Report ¶ 163.

48. Hot air is also introduced into the pulverizer, which performs two functions: (i) it partially dries the coal; and (ii) it conveys the pulverized material as entrained particles to the injectors of the furnace of the boiler. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 54, 58.

Objection: Pl. PFF ¶ 48 is vague and ambiguous. Plaintiffs have not defined “the injectors,” and it is not clear how the term is being used in this asserted fact. Pl. PFF ¶ 48 also violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported in part. Disputed that the entrained particles are conveyed to the “injectors.” Rather, the record shows that it conveys the pulverized material as entrained particles to the “coal burners.” D.I. # 66, Lokenvitz Dep. 95:7–16. Undisputed that hot air is introduced into the mill, which performs two functions: (i) it partially dries the coal; and (ii) it conveys the pulverized materials to the burners as entrained particles.

49. This air is moving on the order of at least 20 to 37 meters per second, and injects the pulverized coal into the furnace of the boiler. Dkt. 74, C. Klingman Supp, Decl. ¶ 52 (Exhibit 52) (Wilcox Deposition Exhibit 5).

Objection: Pl. PFF ¶ 49 is vague and ambiguous. Plaintiffs have not defined “[t]his air,” “inject,” “the furnace,” or “the boiler,” and it is not clear how the terms are being used in this asserted fact. Also, the term “injected” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual

assertion. Additionally, Pl. PFF ¶ 49 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 49 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the declaration of Klingman and an unsponsored exhibit. Klingman does not have the requisite personal knowledge to testify about the topic. Nor is Klingman a timely disclosed or qualified expert on the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Additionally, the cited exhibit is not properly authenticated or sponsored by sworn testimony. Accordingly, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

50. As the coal particles get injected into the combustion zone, they begin to volatilize and combust, and the combustion produces heat, which is used to produce steam. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 58–59.

Objection: Pl. PFF ¶ 50 is vague and ambiguous. Plaintiffs have not defined “injected” or “the combustion zone,” and it is not clear how the terms are being used in this asserted fact. Also, the term “injected” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 50 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—paragraphs

58–59 of the First Fry Report—do not support the stated proposition.

51. The coal combustion also produces two byproducts: flue gas, and ash particles. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 59–61.

Objection: Pl. PFF ¶ 51 is vague and ambiguous. Plaintiffs have not defined “flue gas,” and it is not clear how the term is being used in this asserted fact.

Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—paragraphs 59–61 of the First Fry Report—do not support the stated proposition. Moreover, the record shows that the combustion process does not create only two byproducts. D.I. # 113, Def. PFF ¶¶ 89–90 (D.I. # 81, First Wilcox Report ¶ 32).

52. The flue gas consists of a mix of gases: nitrogen, nitrogen oxides, carbon dioxide, carbon monoxide, sulfur oxides, water vapor, residual oxygen, and a number elemental impurities, such as mercury. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 59, 69; Dkt. 81, First Expert Report of Jennifer L. Wilcox, Ph.D., ¶¶ 32, 37.

Objection: Pl. PFF ¶ 52 is vague and ambiguous. Plaintiffs have not defined “[t]he flue gas” or “elemental impurities,” and it is not clear how the terms are being used in this asserted fact. Also, the term “[t]he flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—paragraphs 32 and 37 of the First Wilcox Report—do not support the stated proposition. Furthermore, Plaintiffs’ expert has stated that both flue gas

and air exist in the combustion zone. D.I. # 77, Fry Dep. 114:25–115:16.

53. The ash particles are comprised of incombustible material (such as minerals). Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 61; Dkt. 81, First Expert Report of Jennifer L. Wilcox, Ph.D, ¶ 33.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—Paragraph 33 of the First Wilcox Report—does not support the stated proposition.

54. Larger, heavier particles are called “bottom ash” and fall to the bottom of the furnace. Dkt. 81, First Expert Report of Jennifer L. Wilcox, Ph.D, ¶¶ 33, 40.

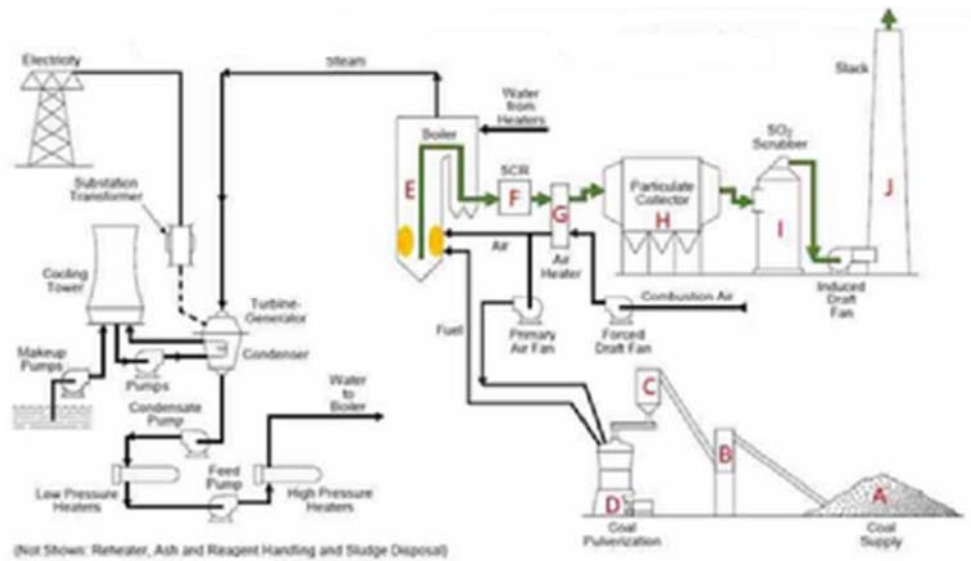
Response: Undisputed to the extent “furnace” has the meaning ascribed in Wilcox’s report.

55. Lighter particles are carried along with the flue gas, and are call “fly ash.” Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 61; Dkt. 81, First Expert Report of Jennifer L. Wilcox, Ph.D, ¶ 33.

Objection: Pl. PFF ¶ 55 is vague and ambiguous. Plaintiffs have not defined “the flue gas,” and it is not clear how the term is being used in this asserted fact. Also, the term “the flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual situation.

Response: Undisputed that lighter particles are carried with some flue gas as “flue gas” is defined by Defendants.

56. In the diagram below, Plaintiffs' technical expert, Dr. Andrew Fry, illustrated Figure 7 from *Steam* to show the combustion zone and the path of the flue gas, by adding yellow ovals to depict the combustion zone, and green arrows to depict the flow of the flue gas.



Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 49, 50, 55–56.

Objection: Pl. PFF ¶ 56 is vague and ambiguous. Plaintiffs have not defined “the combustion zone” or “the flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the term “the flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual situation.

Response: Disputed. Figure 7 from *Steam* does not show the combustion zone and the path of the flue gas. Rather, the record shows that flue gas does not exist in the combustion zone. D.I. # 113, Def. PFF ¶ 293 (D.I. # 81, First Wilcox Report ¶ 110; D.I. # 82, Second Wilcox Report ¶¶ 21, 28, 33–34).

57. As can be seen from the diagram above, in a coal fired power plant, the flue gas begins in the combustion zone, and then exits the furnace and flows downstream in the boiler, past devices that can filter the fly ash, and then out the smokestack. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 49–61.

Objection: Pl. PFF ¶ 57 is vague and ambiguous. Plaintiffs have not defined “the flue gas,” “combustion zone” or “the boiler,” and it is not clear how the terms are being used in this asserted fact. Also, the term “the flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual situation. Additionally, Pl. PFF ¶ 57 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as contrary to the evidence. The record shows that flue gas would *not* be present in the combustion zone and that it begins in the upper region of the furnace. D.I. # 74, Wilcox Dep. 115:20–116:18; D.I. # 113, Def. PFF ¶ 293 (D.I. # 81, First Wilcox Report ¶ 110; D.I. # 82, Second Wilcox Report ¶¶ 21, 28, 33–34).

58. In the above diagram, the furnace portion of the boiler is in the area where the letter “E” is provided, and it includes the combustion zone identified by the two yellow ovals (added by Dr. Fry for illustration purposes). Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 49, 55, 56; Dkt. 38 (Plaintiffs’ Second Amended Complaint for Patent Infringement) at Exh. K (Steam: Its Generation and Use, 40th Edition, Figure 1) at Figure 1 (Dkt. 38-15).

Response: Disputed as unsupported and contrary to the evidence. Exhibit K of Plaintiffs’ Second Amended Complaint does not support the stated proposition. Rather, the record shows that it is difficult to tell based on a diagram where “the combustion zone” is located and that the yellow ovals indicated by Fry would not represent the furnace. D.I. # 74, Wilcox Dep. 67:18–70:11, 84:5–87:19.

59. The yellow ovals represent the area where the pulverized coal is being injected into the combustion zone of the furnace, where the injected coal particles combust. Dkt. 78,

Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 55, 56.

Objection: Pl. PFF ¶ 59 is vague and ambiguous. Plaintiffs have not defined “[t]he yellow ovals,” “injected” “the combustion zone,” “the furnace,” or “coal particles,” and it is not clear how the term is are being used in this asserted fact. Also, the term “injected” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual situation. Additionally, Pl. PFF ¶ 59 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed. The yellow ovals in Fry’s diagram do not represent the area where the pulverized coal is being injected into the combustion zone of the furnace. Rather, the record shows that it is difficult to tell based on a diagram where “the combustion zone” is located and that the yellow ovals indicated by Fry would not represent the “area where the pulverized coal is being injected into the combustion zone of the furnace, where the injected coal particles combust.” D.I. # 74, Wilcox Dep. 67:18–70:11, 84:5–87:19.

60. Upon combustion, the coal forms a gaseous byproduct which is referred to as coal combustion flue gas or simply flue gas. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 59.

Objection: Pl. PFF ¶ 60 is vague and ambiguous. Plaintiffs have not defined “coal combustion flue gas” or “flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “coal combustion flue gas” and “flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion. Additionally, Pl. PFF ¶ 60 violates the Court’s

Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs' argument.

Response: Disputed as contrary to the evidence. Upon combustion, coal does not form a "gaseous byproduct" referred to as flue gas. Rather, the record shows that the product formed upon combustion is combustion gas, not flue gas.

D.I. # 113, Def. PFF ¶¶ 118–126, 293 (D.I. # 81, First Wilcox Report ¶¶ 110; D.I. # 77, Fry Dep. 114:3–120:11, 123:19–124:11, 126:3–127:3, 114:13–120:11; D.I. # 82, Second Wilcox Report ¶¶ 16, 17, 21, 28, 33, 34, 38, 41, 82.

61. The path of the flue gas from its creation in the combustion zone of the furnace through the boiler and out the filtration systems is depicted by the green arrows (added by Dr. Fry for illustration purposes). Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 56, 57.

Objection: Pl. PFF ¶ 61 is vague and ambiguous. Plaintiffs have not defined "the flue gas," "combustion zone," "the furnace," "the boiler" or "the filtration systems," and it is not clear how the terms are being used in this asserted fact. Also, the term "the flue gas" is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 61 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs' argument.

Response: Disputed in part. The stated proposition is true for combustion gases. However, the stated proposition is not true for "the flue gas." For example, the record shows that flue gas is not created "in the combustion zone." D.I. # 113, Def. PFF ¶ 293 (D.I. # 81, First Wilcox Report ¶ 110; D.I. # 82, Second Wilcox Report ¶¶ 21, 28, 33–34); D.I. # 88, Joint Amended Claim Terms;

D.I. # 81, First Wilcox Report ¶¶ 98–101; D.I. # 82, Second Wilcox Report ¶¶ 46–47; 279 D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 189, COMBUSTION ENGINEERING: A REFERENCE BOOK ON FUEL BURNING AND STEAM GENERATION (G. Fryling, ed., 1967), at B–13.

62. The fly ash is carried with flue gas through the plant and is collected by the particulate collection devices. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 75.

Objection: Pl. PFF ¶ 62 is vague and ambiguous. Plaintiffs have not defined “[t]he fly ash,” “flue gas,” “the plant” or “the particulate collection devices,” and it is not clear how the terms are being used in this asserted fact, including whether Plaintiffs are referring to a specific accused plant or a generic plant. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2.

Response: Undisputed based on Defendants’ understanding of “fly ash,” “flue gas,” and “the plant.”

63. There are several types of particulate devices that coal-fired power plants may use, alone or in combination. These include fabric filters, and electrostatic precipitators (ESPs), which filter fly ash, or particulate bound mercury such as created by the invention. They also include selective catalytic reducers (SCRs) which remove nitrous oxides. And they include flue gas desulphurization systems (FGDs) which remove sulphur oxides. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D., at 63, 65, 67 and Dkt. 81, Opening Expert Report of Jennifer Wilcox, Ph.D., at 44, 45, 46.

Objection: Pl. PFF ¶ 63 is vague and ambiguous. Plaintiffs have not defined “fly ash” or “the invention,” and it is not clear how the terms are being used in this asserted fact. Further, Pl. PFF ¶ 63 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’

cited evidence—paragraphs 44 and 46 of the First Wilcox Report—do not support the cited proposition. To the contrary, those paragraphs support the proposition that SCRs and FGDs are not particulate devices, but rather emission control devices. D.I. # 81, First Wilcox Report ¶¶ 44, 46.

64. Fly ash can be used in the manufacture of cement. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 61.

Response: Undisputed.

65. Coal-fired power plants sell fly ash to generate additional revenue. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 61.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the First Fry Report ¶ 61—does not supported the asserted fact that fly ash generated additional revenue. The cited paragraph says that fly ash can be sold to cement companies, but makes no mention of revenue. D.I. # 78, First Fry Report ¶ 61.

66. Activated carbon was a mercury removal process known at the time the of the invention of the ’692 Patent. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 66.

Response: Undisputed.

67. The use of activated carbon was disfavored in part because it rendered the fly ash less suitable for use in cement production, and thus impaired this revenue source for a plant. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 61, 66.

Objection: Pl. PFF ¶ 67 is vague and ambiguous. Plaintiffs have not defined “the fly ash” or “disfavored,” and it is not clear how those terms are being used in this asserted fact. Additionally, Pl. PFF ¶ 67 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed. The use of activated carbon was not “disfavored”

because it “rendered the fly ash less suitable for use in cement production, and thus impaired this revenue source for a plant.” Rather, the record shows that activated carbon is a common and cost-effective method for reducing mercury emissions. D.I. # 81, First Wilcox Report ¶¶ 53–54; D.I. # 66, Lokenvitz Dep. 260:2–261:19.

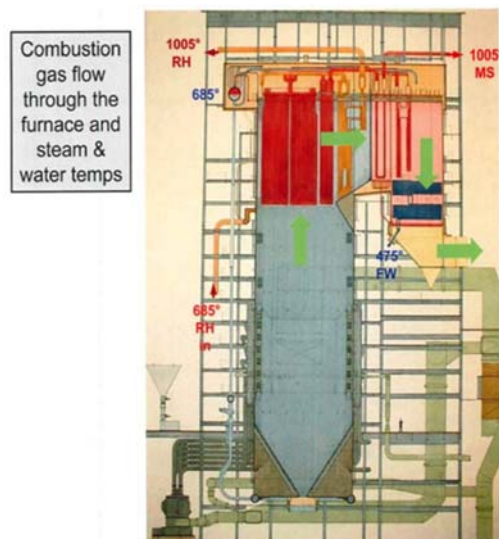
68. “Downstream” refers to a position further away from the boiler. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 94 and fn8.

Response: Undisputed.

69. “Upstream” refers to a position closer to the boiler. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 94 and fn8.

Response: Undisputed.

70. [REDACTED]



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

71. During his deposition on December 5, 2018, Jerald Lokenvitz stated the following:

Q. Mr. Lokenvitz, I'm going to show you what's been marked as Exhibit No. 8, which is a collection of diagrams, several diagrams together. I'll just ask you to flip through those and tell me if you generally recognize -- recognize them or recognize where they may have come from?

A. Yes.

Q. And what is it?

A. It is a cutaway of the original side view of the boiler.

Dkt. 66 (Deposition of Jerald Laverne Lokenvitz, dated December 5, 2018) at 90–91; C. Klingman Decl. ¶ 13 (Exhibit 12) (WPL_00000717, Lokenvitz Exhibit 8).

Response: Undisputed that Lokenvitz answered as quoted above. That Lokenvitz so answered does not make the testimony admissible for all purposes, however.

72. During his deposition on December 5, 2018, Jerald Lokenvitz stated the following:

Q. Okay. And in this drawing where is the combustion zone?

A. Combustion zone would be everything that's in the blue on up into the red.

Q. Is it combusting down in the bottom in the funnel area, as well?

A. If there would be unburned carbon or stuff like that that might drop out, but there is no combustion down there.

Q. Okay. So the combustion is really going on somewhere above that area?

A. Realistically, the combustion starts where the first coal nozzle blows coal in from a mill.

Q. Okay. Which if I'm looking at this drawing, on both sides, roughly midway in that furnace, there are little green rectangles that represent those furnaces; is that right?

A. If you see the man to the right side, it would be the first level up from there.

Q. First level above from there?

A. Yes.

Q. Right. Okay. And -- okay. And that -- inside the wall of the furnace are what look like little green rectangles with little X's in between them. Do you see those?

A. Yes.

Q. On both sides of the interior of the furnace wall?

A. Yes.

Q. And that represents the inlets from the coal pipes?

A. Yes, the coal nozzles.

Q. And that region is roughly where the combustion is occurring?

A. That's where the combustion starts, yes.

Dkt. 66 (Deposition of Jerald Laverne Lokenvitz, dated December 5, 2018) at 191-92; C. Klingman Decl. ¶ 13 (Exhibit 12) (WPL_00000717, Lokenvitz Exhibit 8).

Response: Undisputed that Lokenvitz answered as quoted above. That

Lokenvitz so answered does not make the testimony admissible for all purposes,

however. Further, the quoted testimony and referenced exhibit in Pl. PFF ¶ 72

are taken out of context. Moreover, Pl. PFF ¶ 72 purports to provide scientific,

technical, and specialized knowledge, but Plaintiffs did not timely disclose that

they intended to rely upon Lokenvitz as an expert on this topic. Accordingly, to

the extent that Lokenvitz's deposition testimony is offered to prove the location of

the combustion zone or similar expert conclusions, this testimony should be

excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) & Fed. R. Evid. 702.

73. The purpose of the boiler is to create steam which can be delivered to the turbine. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 48.

Objection: Pl. PFF ¶ 73 is vague and ambiguous. Plaintiffs have not defined “the boiler” or “the turbine,” and it is not clear how the terms are being used in this asserted fact.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the First Fry Report ¶ 48—does not support the asserted fact that “[t]he purpose of the boiler is to create steam which can be delivered to the turbine.” For example, the word “turbine” does not appear in the cited paragraph. D.I. # 78, First Fry Report ¶ 48.

74. In the boiler, steam is generated when heat from the combustion process radiates to the walls of a boiler and converts water to steam. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 57–61.

Objection: Pl. PFF ¶ 74 is vague and ambiguous. Plaintiffs have not defined “the boiler,” and it is not clear how the term is being used in this asserted fact. .

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—paragraphs 57–61 of the First Fry Report—does not support the asserted fact that “steam is generated” when heat from the combustion process radiates to the walls of a boiler and converts water to steam. Rather, the record shows that the radiated heat is used to heat steam, but that steam itself is generated in a steam drum. D.I. # 38-15, STEAM: ITS GENERATION AND USE, at 1-6.

75. The flue gases formed in the combustion zone also play an important part of the heating process necessary to create steam. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 57–61.

Objection: Pl. PFF ¶ 75 is vague and ambiguous. Plaintiffs have not defined “the flue gases,” “the combustion zone,” or “important,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gases” is hotly

contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual situation.

Response: Disputed. “The flue gases” are not “formed in the combustion zone.” D.I. # 88, Joint Amended Claim Terms; D.I. # 113, Def. PFF ¶¶ 234–241, 293, 299 (D.I. # 38-9, Respondent Hazelmere’s Brief (Dec. 20, 2012), at 407, 408, 413, 414; D.I. # 82, Second Wilcox Report ¶¶ 16, 21, 27, 28, 33–34); D.I. # 81, First Wilcox Report ¶¶ 98–101, 110; D.I. # 82, Second Wilcox Report ¶¶ 27, 46–47; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 189, COMBUSTION ENGINEERING: A REFERENCE BOOK ON FUEL BURNING AND STEAM GENERATION (G. Fryling, ed., 1967), at B–13).

76. The flue gases rush upward through the furnace and on through the boiler, and as they pass pipes suspended from the boiler ceiling down into the flue gas path, they convey heat from the combustion to those pipes so that water/steam in these pipes is heated. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 57–61.

Objection: Pl. PFF ¶ 76 is vague and ambiguous. Plaintiffs have not defined “[t]he flue gases,” “the furnace,” “the boiler,” “the flue gas path,” or “these pipes,” and it is not clear how the terms are being used in this asserted fact. Also, the term “the flue gases” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual situation. Pl. PFF ¶ 76 also violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed. “The flue gases” do not “rush upward through the furnace. Rather, flue gas is “downstream from the combustion zone, after the

combustion process is substantially complete.” D.I. # 82, Second Wilcox Report ¶ 33.

77. *Steam* is a treatise published periodically by Babcock & Wilcox. *See, e.g.*, Dkt. 38-15 (*Steam: Its Generation and Use* (“*Steam*”), 40th Edition.

Response: Undisputed.

78. Mr. Douglas Comrie, the inventor of the Chem-Mod process used by Defendants, agreed that Babcock & Wilcox was at one time “the largest boiler manufacturer in the world.” Dkt. 63, Deposition Transcript of Douglas Comrie, dated February 22, 2019, at 206:15–17.

Objection: Pl. PFF ¶ 78 is duplicative of Pl. PFF ¶ 33.

Response: Undisputed to the extent “Chem-Mod Process” has the meaning understood in Pl. PFF ¶ 19.

79. During his deposition on February 22, 2019, Douglas Comrie stated the following:

Q. And who is Babcock & Wilcox?

A. At one point in time they were the largest boiler manufacturer in the world. They made boilers for nuclear submarines, nuclear aircraft carriers.

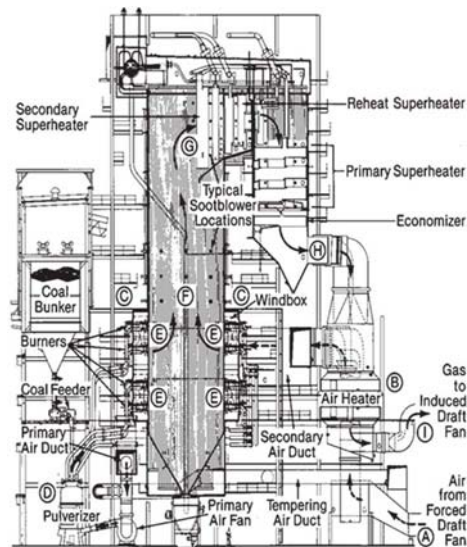
Dkt. 63, Deposition Transcript of Douglas Comrie, dated February 22, 2019, at 206:15–17.

Response: Undisputed that Comrie answered as quoted above. That Comrie so answered does not make the testimony admissible for all purposes, however.

80. Defendants’ technical expert, Dr. Jennifer Wilcox, relied on *Steam* to explain how a power plant and boiler operate. Dkt. 81, First Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 41.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the First Wilcox Report ¶ 41—does not support the asserted fact that Wilcox relied on *Steam* to *explain* how a power plant and boiler operate. Rather, paragraph 41 of the First Wilcox Report simply uses a figure taken from *Steam* as an illustrative tool and does not rely upon it to explain operations. D.I. # 81, First Wilcox Report ¶ 41.

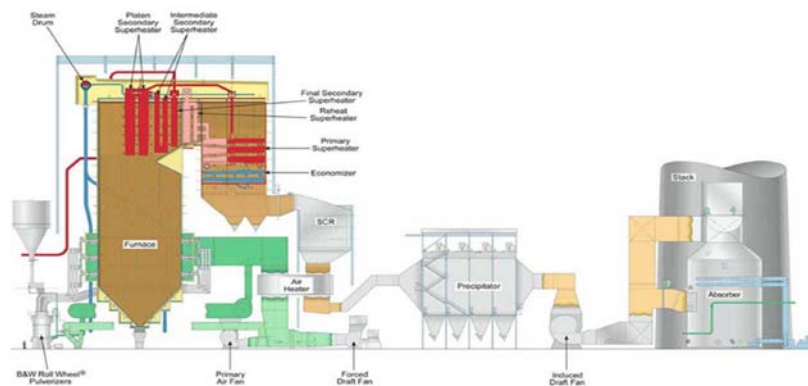
81. *Steam* contains the following Figure:



Dkt. 35-15 (*Steam*) at pg. 15 of 29.

Response: Undisputed that *Steam* contains this figure; that does not make *Steam* or Figure 7 admissible for all purposes, however.

82. Dr. Wilcox explained that Figure 4 from *Steam*, depicted below, is “an example of typical coal-fired power plant with controls for Nox, Sox, and particulate matter removal.” Dkt. 81, First Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 41; C. Klingman Decl. ¶ 11 (Exhibit 10) (*STEAM It’s Generation and Use* 9 (Babcock & Wilcox eds., 41st ed. 2005, Plate 8).



Response: Disputed in part. Disputed that the figure depicted in Pl. PFF ¶ 82 is “Figure 4 from *Steam*.” Rather, the record shows that the figure is “Figure 4” from Wilcox’s First Expert Report. D.I. # 81, First Wilcox Report ¶ 41.

Undisputed that Wilcox explained that the figure depicted in Pl. PFF ¶ 82 is “an example of a typical coal-fired power plant with controls for NO_x, SO_x, and particulate matter removal.”

83. Dr. Wilcox testified that “[t]his configuration was typical as of February 2002.” Dkt. 81, First Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 41; C. Klingman Decl. ¶ 11 (Exhibit 10) (STEAM It’s Generation and Use 9 (Babcock & Wilcox eds., 41st ed. 2005, Plate 8).

Response: Undisputed.

84. Combustion occurs in the area where the pulverized coal is injected into the furnace. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 56, 58.

Objection: Pl. PFF ¶ 84 is vague and ambiguous. Plaintiffs have not defined “the pulverized coal,” “injected,” “area,” “combustion,” or “the furnace,” and it is not clear how the terms are being used in this asserted fact. Also, the term “injected” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual situation.

Response: Disputed. Combustion takes place both in the combustion zone and where the pulverized coal is injected. D.I. # 81, First Wilcox Report ¶ 42.

85. The combustion of the coal produces flue gas, which flows up in the furnace and then on through the system. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 56-57.

Objection: Pl. PFF ¶ 85 is vague and ambiguous. Plaintiffs have not defined “flue gas,” “the furnace” or “the system,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual situation. Pl. PFF ¶ 85 also violates the Court’s Standing Order on Motions for Summary Judgment,

Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Sec. I.B.6, because it simply recites Plaintiffs' argument.

Response: Disputed. Flue gas does not “flow up in the furnace.” Rather, flue gas is the gas in the region from above the combustion zone through the stack outlet that results from the substantially-complete combustion of coal. D.I. # 88, Joint Amended Claim Terms; D.I. # 113, Def. PFF ¶¶ 234–244, 299 (D.I. # 38-9, Respondent Hazelmere’s Brief (Dec. 20, 2012), at 407, 408; D.I. # 82, Second Wilcox Report ¶¶ 16, 27, 28, 46, 47; D.I. # 81, First Wilcox Report ¶¶ 42, 98–101; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 189, COMBUSTION ENGINEERING: A REFERENCE BOOK ON FUEL BURNING AND STEAM GENERATION (G. Fryling, ed., 1967), at B–13); D.I. # 66, Lokenvitz Dep. 99:18–25.

86. As the flue gas passes up and out the furnace, it passes through collections of pipes suspended into the path of the flue gas flow. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 60.

Objection: Pl. PFF ¶ 86 is vague and ambiguous. Plaintiffs have not defined “the flue gas,” “the furnace” or “the flue gas flow,” and it is not clear how the terms are being used in this asserted fact. Also, the term “the flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual situation. Additionally, Pl. PFF ¶ 86 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed. Flue gas does not “pass up” the furnace.” Rather, flue gas is created in the region above the combustion zone, and passes through the

stack outlet. D.I. # 88, Joint Amended Claim Terms; D.I. # 113, Def. PFF ¶¶ 234–241, 299 (D.I. # 38-9, Respondent Hazelmere’s Brief (Dec. 20, 2012), at 407, 408; D.I. # 81, First Wilcox Report ¶¶ 42, 98–101; D.I. # 82, Second Wilcox Report ¶¶ 16, 27, 28, 46, 47; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 189, COMBUSTION ENGINEERING: A REFERENCE BOOK ON FUEL BURNING AND STEAM GENERATION (G. Fryling, ed., 1967), at B–13; D.I. # 66, Lokenvitz Dep. 99:18–25.

87. These include the “Platen Secondary Superheater,” the “Intermediate Secondary Superheater,” “Final Secondary Superheater,” and so on. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 60.

Objection: Pl. PFF ¶ 87 is vague and ambiguous. Plaintiffs have not defined “these,” and it is not clear how the terms are being used in this asserted fact.

Additionally, Pl. PFF ¶ 87 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not correctly identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported. Pl. PFF ¶ 87 is taken out of context. Additionally, the report cited does not stand for the proposition asserted in PFF ¶ 87. For example, the First Fry Report does not use the words “Platen Secondary Superheater,” “Intermediate Secondary Superheater,” or “Final Secondary Superheater.” D.I. # 78, First Fry Report.

88. As the flue gas passes out of the boiler, it then passes through various filtration systems. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 62–67.

Objection: Pl. PFF ¶ 88 is vague and ambiguous. Plaintiffs have not defined “the flue gas” or “the boiler,” and it is not clear how the terms are being used in this asserted fact. Also, the term “the flue gas” is hotly contested in this litigation.

D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual situation. Additionally, the cited document does not state that any particular plant contains more than one filtration system.

Response: Undisputed based on Defendants’ understanding of “flue gas” and if PFF ¶ 88 is understood to encompass a unit that contains just one filtration system

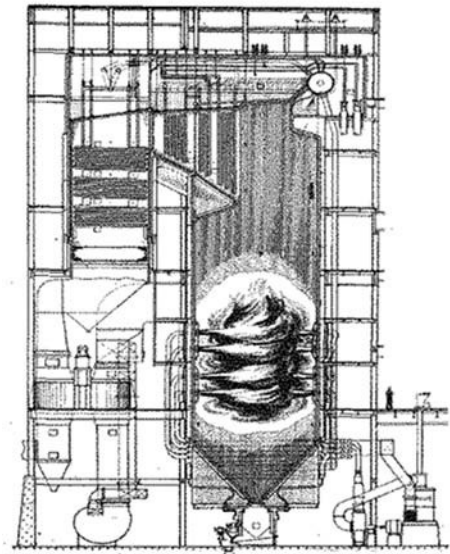
89. The filtered flue gas then passes out the smokestack. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 57.

Objection: Pl. PFF ¶ 89 is vague and ambiguous. Plaintiffs have not defined “[t]he filtered flue gas,” and it is not clear how the term is being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation.

D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual situation.

Response: Disputed in part. Disputed that flue gas passed “out” the smokestack. Rather, flue gas ceases to exist once it passes through the stack outlet. D.I. # 88, Joint Amended Claim Terms; D.I. # 113, Def. PFF ¶¶ 239, 265, 284 (D.I. # 38-9, Respondent Hazelmere’s Brief (Dec. 20, 2012), at 408; D.I. # 38-10, Decision on Appeal (Dec. 17, 2013) at 368; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 189, COMBUSTION ENGINEERING: A REFERENCE BOOK ON FUEL BURNING AND STEAM GENERATION (G. Fryling, ed., 1967), at B–13; D.I. # 81, First Wilcox Report ¶¶ 100–101). Undisputed that flue gas does pass through the smokestack.

90. An illustration of what happens inside the furnace portion is shown in the figure below:

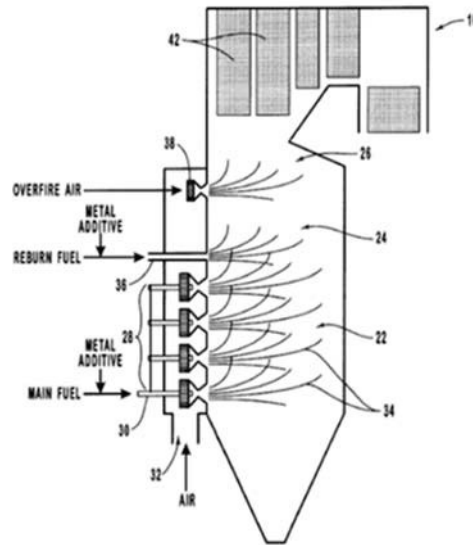


C. Klingman Decl. ¶ 14 (Exhibit 13) (WPS_00005391–6160) at 5590.

Objection: Pl. PFF ¶ 90 is vague and ambiguous. Plaintiffs have not defined “[w]hat happens” or “furnace.”

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the manual for Weston’s CE Boiler at WPS_00005590—does not support the stated proposition that the figure depicted in Pl. PFF ¶ 90 depicts “what happens inside the furnace portion.” D.I. # 99, Klingman Decl. Ex. 13 at WPS_00005590; 279 Case D.I. # 59, Hujet Dep. 97:24–99:12. Additionally, Pl. PFF ¶ 90 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the declaration of Klingman alone to sponsor the document. Klingman does not have the requisite personal knowledge to testify about the topic. Nor is Klingman a timely disclosed or qualified expert on the topic. Accordingly, this evidence is inadmissible hearsay and unqualified expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c), Fed. R. Evid. 702, and Fed. R. Evid. 802.

91. United States Patent No. U.S. 6,206,685 contains the following figure:



C. Klingman Decl. ¶ 32 (Exhibit 31).

Response: Undisputed that the patent contains the figure; that does not make the patent or the figure admissible for all purposes, however.

92. Both Defendant Weston and Columbia use what are called “tangentially-fired boilers” made by Combustion Engineering (CE). While they vary a bit in size, their overall configuration and operation are substantially similar. This figure is taken from the manual for Weston’s CE boiler. Boilers of this type are usually square in cross-section. Coal is injected from each corner at an angle, which causes the combustion process to better mix. C. Klingman Decl. ¶ 14 (Exhibit 13) (WPS_00005391–6160) at 5590; Dkt. 78, First Report of Dr. Fry, ¶ 60.

Objection: Pl. PFF ¶ 92 is vague and ambiguous. Plaintiffs have not defined “a bit,” “substantially similar,” “[t]his figure,” “injected” or “the combustion process,” and it is not clear how the terms are being used in this asserted fact. Also, the term “injected” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 92 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’

cited evidence—the manual for Weston’s CE Boiler at WPS_00005590 and the First Fry Report at ¶ 60—does not support the stated proposition that the boilers at issue in the litigation are “substantially similar” or that “these boilers are large, generally having a square cross-section 50ft on each side, and being about 120 feet tall.” Rather, the record shows coal is injected from each corner at an angle, which causes the combustion process to better mix. D.I. # 99, Klingman Decl. Ex. 13 at WPS_00005590; D.I. # 78, First Fry Report ¶ 60. Nor do Plaintiffs offer any evidence to support their assertion that Defendant Columbia also “use[s] what are called ‘tangentially-fired boilers’ made by Combustion Engineering (CE).” Finally, the manual for Weston’s CE Boiler is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

93. In the figure on the left, the combustion process is illustrated to show that it is a swirling fireball where the coal is combusting in the boiler (in the combustion zone of the boiler’s furnace) which contains: (1) combusting pulverized coal; (2) air which was used to inject the pulverized coal; (3) and the flue gas resulting from the combustion, which contains a mix of gaseous byproducts; and (4) solid residual byproducts of combustion, which include heavier residual products called “bottom ash” and lighter residual products called “fly ash.” The flue gas permeates every part of the furnace and the boiler. Dkt. 78, First Report of Dr. Fry, ¶¶ 49-51.

Objection: Pl. PFF ¶ 93 is vague and ambiguous. Plaintiffs have not identified any figure or defined “the figure on the left,” “the combustion process,” “where the coal is combusting in the boiler,” “the combustion zone of the boiler’s furnace,” “inject,” “the flue gas,” “the combustion,” “the furnace” or “the boiler,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “inject” and “flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion. Additionally, Pl. PFF ¶ 93 violates the Court’s Standing Order on Motions for Summary Judgment, Sec.

I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, Sec. I.B.6, because it simply recites Plaintiffs' argument, and Secs. I.B.4 and I.C.1, because the citation does not correctly identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported. Plaintiffs' cited evidence—paragraphs 49–51 of the First Fry Report—does not support the stated proposition. The cited paragraphs do not appear to refer to the figure referenced in Pl. PFF ¶ 93.

94. Steam depicts the following figure (“Steam Figure 15”):

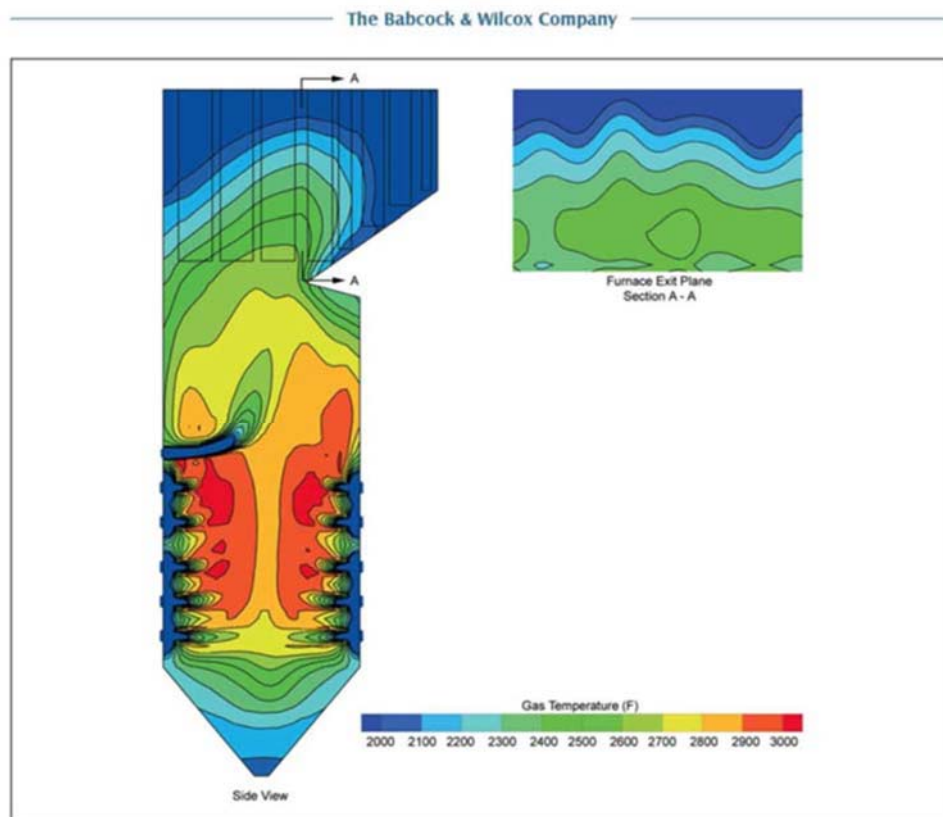


Fig. 15 Numerical modeling results of furnace temperature profiles for a typical 775 MW bituminous coal-fired boiler.

C. Klingman Decl. ¶ 11 (Exhibit 10) (Steam), pg. 6-19.

Response: Undisputed that *Steam* contains Figure 15; that does not make *Steam* or Figure 15 admissible for all purposes, however.

95. Steam Figure 15 is titled “Numerical modeling results of furnace temperature

profiles for a typical 775 MW bituminous coal-fired boiler.” C. Klingman Decl. ¶ 11 (Exhibit 10) (Steam), pg. 6-19.

Response: Undisputed that *Steam* Figure 15 is so titled; that does not make *Steam* or Figure 15 admissible for all purposes, however.

96. Steam Figure 15 depicts the range of temperatures of flue gas in the boiler. C. Klingman Decl. ¶ 11 (Exhibit 10) (Steam), pg. 6-19.

Objection: Pl. PFF ¶ 96 is vague and ambiguous because Plaintiffs have not defined “flue gas” or “the boiler,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—*Steam* at 6–19—does not support the stated proposition that “Steam Figure 15 depicts the range of temperatures of flue gas in the boiler.” Additionally, Plaintiffs have not offered competent testimony to support the stated proposition. Pl. PFF ¶ 96 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the declaration of Klingman and an unsponsored exhibit. Klingman does not have the requisite personal knowledge to testify about the topic. Nor is Klingman a timely disclosed or qualified expert on the topic. Accordingly, this evidence is inadmissible hearsay and unqualified expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c), Fed. R. Evid. 702, and Fed. R. Evid. 802.

97. Columbia Unit 1’s boiler is a tangentially-fired boiler. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶ 165.

Response: Undisputed.

98. The following figure (“Figure 7”) is from the publication titled “CFD Investigation of Combustion in 660MW Tangential Fired Boiler.” C. Klingman Decl. ¶ 12 (Exhibit 11) (“AshishFande Article”), pg. 904.

Response: Undisputed that “CFD Investigation of Combustion in 660MW Tangential Fired Boiler” contains Figure 7; that does not make that publication or Figure 7 admissible for all purposes, however.

99. Figure 7 is titled “Fig.7. Temperature fields in a coal fired furnace (a) along vertical section (b) along horizontal section.” C. Klingman Decl. ¶ 12 (Exhibit 11) (“AshishFande Article”), pg. NALC01062784.

Response: Undisputed that “CFD Investigation of Combustion in 660MW Tangential Fired Boiler” Figure 7 is so titled; that does not make that publication or Figure 7 admissible for all purposes, however.

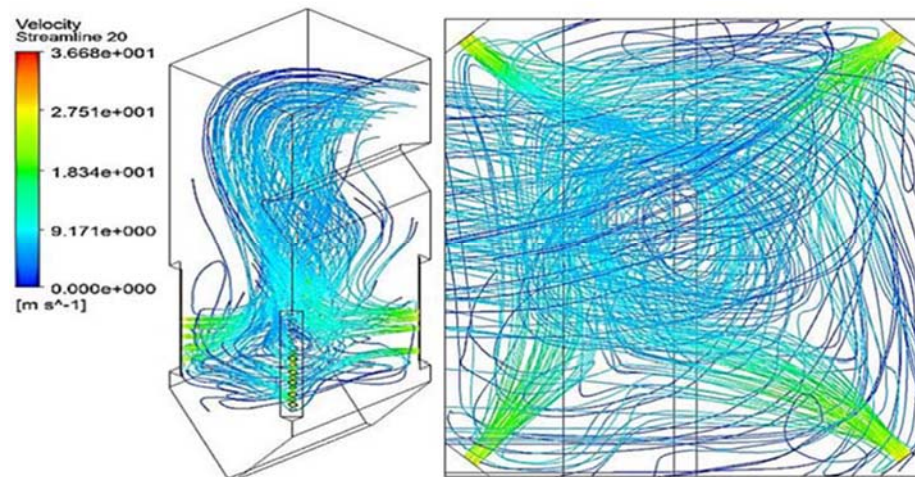
100. Figure 7 depicts the flue gas temperature profile in a tangentially-fired boiler. C. Klingman Decl. ¶ 12 (Exhibit 11 (“AshishFande Article”), pg. NALC01062784.

Objection: Pl. PFF ¶ 100 is vague and ambiguous because Plaintiffs have not defined “Figure 7” or the “flue gas temperature profile,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the AshishFande Article at NALC01062784—does not support the stated proposition that “Figure 7 depicts the flue gas temperature profile in a tangentially-fired boiler.” Additionally, Pl. PFF ¶ 90 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the declaration of Klingman and an unsponsored exhibit. Klingman does not have the requisite personal knowledge

to testify about the topic. Nor is Klingman a timely disclosed or qualified expert on the topic. Accordingly, this evidence is inadmissible hearsay and unqualified expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c), Fed. R. Evid. 702, and Fed. R. Evid. 802.

101. The following figure (“Figure 6”) is from the publication titled “CFD Investigation of Combustion in 660MW Tangential Fired Boiler.” C. Klingman Decl. ¶ 12 (Exhibit 11) (“AshishFande Article”), pg. 902



Response: Undisputed that “CFD Investigation of Combustion in 660MW Tangential Fired Boiler” contains Figure 6; that does not make that publication or Figure 6 admissible for all purposes, however.

102. Figure 6 is titled “Fig. 6. Streamline of the flue gas and coal particle (a) isometric view (b) top view.” C. Klingman Decl. ¶ 12 (Exhibit 11) (“AshishFande Article”), pg. 902.

Response: Undisputed that “CFD Investigation of Combustion in 660MW Tangential Fired Boiler” Figure 6 is so titled; that does not make that publication or Figure 6 admissible for all purposes, however.

103. Figure 6 depicts the flue gas in the furnace. C. Klingman Decl. ¶ 12 (Exhibit 11) (“AshishFande Article”), pg. 902.

Objection: Pl. PFF ¶ 103 is vague and ambiguous because Plaintiffs have not defined “Figure 6,” “the flue gas” or “the furnace,” and it is not clear how the

terms are being used in this asserted fact. Also, the term “the flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the AshishFande Article at 902—does not support the stated proposition that “Figure 6 depicts the flue gas in the furnace.” Additionally, Pl. PFF ¶ 103 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the declaration of Klingman and an unsponsored exhibit. Klingman does not have the requisite personal knowledge to testify about the topic. Nor is Klingman a timely disclosed or qualified expert on the topic. Accordingly, this evidence is inadmissible hearsay and unqualified expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c), Fed. R. Evid. 702, and Fed. R. Evid. 802.

104. Below is Fig. 5 (Wilcox Exh. 6 from Himiachandra) depicting path lines in the furnace.



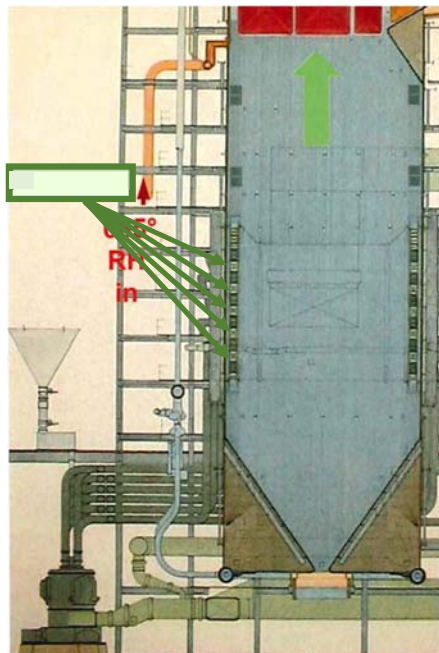
C. Klingman Decl. ¶ 5 (Exhibit 4) (“Himianchandra), Fig. 6.

Objection: Pl. PFF ¶ 104 is vague and ambiguous because Plaintiffs have not defined “path lines” or “the furnace,” and it is not clear how the terms are being used in this asserted fact.

Response: Undisputed that Himianchandra contains a Figure 6; that does not make that publication or Figure 6 admissible for all purposes, however.

Additionally, Pl. PFF ¶ 104 is disputed in that it purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the declaration of Klingman and an unsponsored exhibit. Klingman does not have the requisite personal knowledge to testify about the topic. Nor is Klingman a timely disclosed or qualified expert on the topic. Accordingly, this evidence is inadmissible hearsay and unqualified expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c), Fed. R. Evid. 702, and Fed. R. Evid. 802.

105.



[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

106.

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

107. Pulverized Refined Coal injected by the lowest injector will combust there, and the resulting flue gas will necessarily flow up past the higher injectors. Dkt. 78 (Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement) at ¶¶ 165-167.

Objection: Pl. PFF ¶ 107 is vague and ambiguous because Plaintiffs have not defined “Pulverized Refined Coal,” “injected,” “combust,” or “the resulting flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “flue gas” and “injected” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion. Furthermore, Pl. PFF ¶ 107 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed. [REDACTED]

[REDACTED]

[REDACTED]

108. Coal-fired power plants are a key part of the nation’s electric power. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶ 75.

Response: Undisputed with Defendants’ understanding that “ the nation’s electric power” refers to “the nation’s electric power supply.”

109. Coal-fired power plants are one of the nation's largest sources of mercury emissions. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶¶ 71, 75.

Response: Disputed as unsupported. The First Fry Report does not provide a source for the statement that coal-fired power plants are one of the nation's largest sources of mercury emissions. Accordingly, the cited opinion is unreliable and should be excluded per Fed. R. Evid. 702.

110. Mercury is contained at various concentrations in native coal used by power plants. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶ 66, 68; Dkt. 81, First Expert Report of Jennifer L. Wilcox, Ph.D. at ¶ 49.

Response: Undisputed.

111. As coal is combusted, mercury is released into the flue gas in its elemental form, which is very difficult to capture. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶ 66.

Objection: Pl. PFF ¶ 111 is vague and ambiguous because Plaintiffs have not defined "the flue gas" or "difficult," and it is not clear how the terms are being used in this asserted fact. Also, the term "flue gas" is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Furthermore, Pl. PFF ¶ 111 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed. The product formed upon combustion is combustion gas, not flue gas. The record shows that flue gas is not created in the combustion zone. D.I. # 81, First Wilcox Report ¶¶ 42–43, 98–101; D.I. # 82, Second Wilcox Report ¶ 46.

112. Mercury emitted from a power plant stack will stay in the atmosphere until it is eventually converted to an oxidized form, is captured by moisture, precipitates and is collected in

waterways where it is further converted to an organometallic and metabolized by fish. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶ 66.

Objection: Pl. PFF ¶ 112 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported and contrary to the evidence. The First Fry Report indicated that not all mercury emitted from a power plant will eventually be converted to an organometallic, some will be converted to methylmercury. D.I. # 78, First Fry Report ¶ 72. Moreover, the record does not support that all mercury emitted from power plants stacks will be metabolized by fish.

113. Mercury can be toxic to humans. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶ 66.

Response: Undisputed.

114. The Environmental Protection Agency has discussed the toxicity of mercury:

The United States Environmental Protection Agency (EPA) in its Utility Air Toxins Report to Congress-February 1998 concluded that “mercury from coal-fired power plants is a serious concern. Power plants account for about 52 tons of annual manmade mercury emissions in the country.” The report states that EPA has been unable to identify any currently feasible, commercially available technology for reducing these emissions. It recommends “further evaluation of potential control strategies” (see www.epa.gov/region2/heath/mercury.htm).

The United States Department of Energy (DOE) indicated that it “wants to develop a wider array of mercury control options for power plants that can reliably reduce emissions by 50 to 70% by 2005 and 90% by 2010.” (See www.netl.doe.gov/publications/press/2001/tl_mercuryse12.html)

Dkt. 38-1, ’692 Patent, 1:10-26.

Response: Undisputed that the patent contains the statement from the EPA; that does not make the patent or the statement admissible for all purposes, however.

115. The invention of the '692 Patent addresses the problem that it is difficult to filter and remove elemental mercury found in flue gas in a way that did not require adding expensive particulate collection systems or plant modifications, and did not render the resulting fly ash unusable for cement manufacture. Dkt. 38-1, '692 Patent, 1:10–3:52.

Objection: Pl. PFF ¶ 115 is vague and ambiguous because Plaintiffs have not defined “flue gas” or “the resulting fly ash,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Additionally, Pl. PFF ¶ 115 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed. The '692 Patent does not cover an innovative process because the '692 Patent claims are directed to natural phenomena for which there is no innovative process and there is no new or non-obvious invention claimed in that patent. D.I. # 113, Def. PFF ¶ 342 (D.I. # 38-1, '692 Patent at Abstract, Claims 1 and 19; D.I. # 38-3, Oehr Decl. (May 17, 2016) ¶ 7); D.I. # 113, Def. PFF ¶¶ 443–448 (D.I. # 81, First Wilcox Report ¶¶ 154, 207, 210; D.I. # 79, Second Fry Report ¶¶ 168, 217). Additionally, Pl. PFF ¶ 115 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the '692 Patent, which is not sponsored by sworn testimony. Accordingly, this evidence is an undisclosed and unqualified expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c). Finally, that the patent contains this assertion does

not make the patent or the assertion admissible for all purposes.

116. Mr. Oehr, the inventor of the '692 Patent, is a scientist with over thirty years of experience in chemical and electrochemical research and development. Dkt. 38-3, Declaration of Klaus Oehr, ¶¶ 1–3; Dkt. 69, Deposition Transcript of Klaus H. Oehr, dated January 17, 2019 at 17:23-18:10; Declaration of C. Klingman at ¶¶ 15-19 (Exhibits 14-18) (Oehr Exhibits 12–16).

Objection: Pl. PFF ¶ 116 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed in part. Disputed that Oehr is the inventor of the '692 Patent. Oehr is the named inventor of the '692 Patent, not the inventor of the purported claimed invention. D.I. # 38-1, '692 Patent. Undisputed that Oehr is a scientist with over 30 years of experience in chemical and electrochemical research and development.

117. Mr. Oehr is the inventor of numerous chemical products and processes. Dkt. 38-3, Declaration of Klaus Oehr, ¶¶ 1–3; Dkt. 69, Deposition Transcript of Klaus H. Oehr, dated January 17, 2019 at 17:23-18:10; Declaration of C. Klingman at ¶¶ 15-19 (Exhibits 14-18) (Oehr Exhibits 12–16).

Response: Disputed as unsupported. Oehr is the named inventor of some patents, but there is no evidence that Oehr invented “numerous chemical products and processes.” D.I. # 99, Klingman Decl. Exs. 14–18, ¶¶ 15–19 (Oehr Exhibits 12–16).

118. While working on the development of other pollution controls for flue gases, Mr. Oehr conceived that molecular halogens, including molecular bromine (Br₂), will combine with elemental mercury to form mercuric bromide (HgBr₂), and that mercuric bromide will adsorb to alkaline solid particles, which then can be more easily filtered out of the flue gas by the power plant's filtration systems. Dkt. 38-1, '692 Patent at 1:10–3:52; Dkt. 38-3, Declaration of Klaus Oehr at ¶¶ 4–5.

Objection: Pl. PFF ¶ 118 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported. Oehr did not conceive of the chemistry behind the '692 Patent because the '692 Patent claims are directed to natural phenomena for which there is no inventor and there is no new or non-obvious invention claimed in that patent. D.I. # 113, Def. PFF ¶ 342 (D.I. # 38-1, '692 Patent at Abstract, Claims 1 and 19; D.I. # 38-3, Oehr Decl. (May 17, 2016) ¶ 7); D.I. # 113, Def. PFF ¶¶ 443–448 (D.I. # 81, First Wilcox Report ¶¶ 154, 207, 210; D.I. # 79, Second Fry Report ¶¶ 168, 217). Additionally, Pl. PFF ¶ 118 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite to the declaration of Oehr, who is not a timely disclosed or qualified expert on the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) & Fed. R. Evid. 702.

119. Mr. Oehr realized that molecular halogens, such as molecular bromine, are highly corrosive, and injecting molecular bromine into flue gas contributes to corrosion within the power plant. Dkt. 35-3, Declaration of Klaus Oehr.

Objection: Pl. PFF ¶ 119 is vague and ambiguous because Plaintiffs have not defined “highly corrosive,” “injecting,” or “flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “injecting” and “flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion. Furthermore, Pl. PFF ¶ 119 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported. The evidence cited—the declaration of Oehr—does not demonstrate that “molecular halogens, such as molecular bromine, are highly corrosive, and injecting molecular bromine into flue gas contributes to corrosion within the power plant.” For example, neither the word “corrosive” nor the word “corrosion” appear in the declaration. D.I. # 38-3, Decl. of Oehr. Additionally, Pl. PFF ¶ 119 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite to the declaration of Oehr, who is not a timely disclosed or qualified expert on the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c).

120. Part of Mr. Oehr’s inventive process covered by the ’692 Patent claims was to inject a “thermolabile molecular bromine precursor.” *See, e.g.*, Dkt. 38-1, ’692 Patent at claim 1 and claim 19; Dkt. 38-3, Declaration of Klaus Oehr at ¶ 4.

Objection: Pl. PFF ¶ 120 is vague and ambiguous because Plaintiffs have not defined “inject,” and it is not clear how the term is being used in this asserted fact. Also, the term “inject” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Further, Pl. PFF ¶ 120 is vague and ambiguous because it lacks a comprehensible sentence structure. Finally, Pl. PFF ¶ 120 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I, because it uses legal characterization with a reference to the “inventive process covered by the ’692 Patent claims.”

Response: Disputed as unsupported and contrary to the evidence. The ’692 Patent does not cover an innovative process, because the ’692 Patent claims are directed to natural phenomena for which there is no innovative process, and there

is no new or non-obvious invention claimed in that patent. D.I. # 113, Def. PFF ¶ 342 (D.I. # 38-1, '692 Patent at Abstract, Claims 1 and 19; D.I. # 38-3, Oehr Decl. (May 17, 2016) ¶ 7); D.I. # 113, Def. PFF ¶¶ 443–448 (D.I. # 81, First Wilcox Report ¶¶ 154, 207, 210; D.I. # 79, Second Fry Report ¶¶ 168, 217). Additionally, Pl. PFF ¶ 120 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite to the '692 Patent and the declaration of Oehr, neither of which are timely disclosed or qualified expert opinions on the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702.

121. The parties agreed that “thermolabile molecular bromine precursor” is “a bromide compound that decomposes at flue gas temperatures typical of coal-fired power plants which will lead to and result in the formation of molecular bromine (Br₂).” Dkt. 88, Amended Joint Table of Terms Requiring Construction at p. 3.

Response: Undisputed.

122. The term “thermolabile” simply refers to a compound that breaks down, or decomposes, under heat. In the Reexamination of the '692 Patent, the Patent and Trademark Appeal Board adopted the definition provided by Webster’s Third New International Dictionary 2373 (1993), which provides: “unstable when heated.” Dkt 38-10, Plaintiffs’ Second Amended Complaint, Exhibit F, p. 362.

Objection: Pl. PFF ¶ 122 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported by admissible evidence. To the extent Webster’s Third New International Dictionary is offered to prove the meaning of the word “thermolabile,” the evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

123. The innovative process of the '692 Patent involves the injection into flue gas of a molecular bromine precursor, which is thermolabile at flue gas temperatures, so that the precursor will decompose, and the results of the decomposition will lead to and result in the formation of molecular bromine. Dkt. 38-1, '692 Patent at claims 1 and 19; Dkt. 38-3, Declaration of Klaus Oehr at ¶¶ 4–6.

Objection: Pl. PFF ¶ 123 is vague and ambiguous because Plaintiffs have not defined “injection,” “flue gas,” “molecular bromine precursor,” “thermolabile,” or “flue gas temperatures,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “injection” and “flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Furthermore, Pl. PFF ¶ 123 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Sec. I.B.6, because it simply recites purported expert testimony and Plaintiffs’ argument.

Response: Disputed as unsupported and contrary to the evidence. The innovative process of the '692 Patent is set forth in the claims. Pl. PFF ¶ 123 does not quote the language of any claim and Plaintiffs’ summary of the claims is out of context and incomplete. The relevant sections of claim 19 read, “bromide compound that is a thermolabile molecular bromine precursor.” D.I. # 38-1, '692 Patent, at Claim 19. Moreover, the '692 Patent does not cover an innovative process, because the '692 Patent claims are directed to natural phenomena for which there is no innovative process, and there is no new or non-obvious invention claimed in that patent. D.I. # 113, Def. PFF ¶ 342 (D.I. # 38-1, '692 Patent at Abstract, Claims 1 and 19; D.I. # 38-3, Decl. of Oehr (May 17, 2016) ¶ 7); D.I. # 113, Def. PFF ¶¶ 443–448 (D.I. # 81, First Wilcox Report ¶¶ 154, 207,

210; D.I. # 79, Second Fry Report ¶¶ 168, 217). Additionally, Pl. PFF ¶ 123 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite to the '692 Patent and the declaration of Oehr, neither of which are timely disclosed or qualified expert opinions on the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c).

124. In turn, this molecular bromine will combine with the elemental mercury in the flue gas to form mercuric bromide, which then will adsorb onto provided solid alkaline particles. Dkt. 38-1, '692 Patent at claims 1 and 19; Dkt. 38-3, Declaration of Klaus Oehr at ¶¶ 4–6.

Objection: Pl. PFF ¶ 124 is vague and ambiguous because Plaintiffs have not defined “this molecular bromine” or “the flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the term “the flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 124 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Sec. I.B.6, because it simply recites a purported expert’s opinion and Plaintiffs’ argument.

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 124 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite to the '692 Patent and the declaration of Oehr, neither of which are timely disclosed or qualified expert opinions on the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c).

125. These mercury containing particles then can be successfully from the flue gas by

the particulate collection devices. Dkt. 38-1, '692 Patent at claims 1 and 19; Dkt. 38-3, Declaration of Klaus Oehr at ¶¶ 4–6.

Objection: Pl. PFF ¶ 125 is vague and ambiguous because Plaintiffs have not defined “[t]hese mercury containing particles,” “the flue gas,” or “the particulate collection devices,” and it is not clear how the terms are being used in this asserted fact. Further, Pl. PFF ¶ 125 is vague and ambiguous because it lacks a comprehensible structure. Also, the term “the flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Finally, Pl. PFF ¶ 125 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6 because it simply recites a purported expert’s opinion.

Response: PFF ¶ 125 is unintelligible; therefore, Defendants are unable to respond. Additionally, Pl. PFF ¶ 125 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite to the '692 Patent and the declaration of Oehr, neither of which are timely disclosed or qualified expert opinions on the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c).

126. The invention disclosed in the '692 Patent allows for the removal of mercury from the emissions of a coal fired power plant. Dkt. 38-1, '692 Patent at claims 1 and 19; Dkt. 38-3, Declaration of Klaus Oehr at ¶¶ 4–6.

Objection: Pl. PFF ¶ 126 is vague and ambiguous because Plaintiffs have not defined “[t]he invention disclosed in the '692 Patent,” and it is not clear how the term is being used in this asserted fact. Additionally, Pl. PFF ¶ 126 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it

simply recites a purported expert's opinion and Plaintiffs' argument.

Response: Disputed. The '692 Patent does not cover an innovative process because the '692 Patent claims are directed to natural phenomena for which there is no innovative process and there is no new or non-obvious invention claimed in that patent. D.I. # 113, Def. PFF ¶ 342 (D.I. # 38-1, '692 Patent at Abstract, Claims 1 and 19; D.I. # 38-3, Oehr Decl. (May 17, 2016) ¶ 7); D.I. # 113, Def. PFF ¶¶ 443–448 (D.I. # 81, First Wilcox Report ¶¶ 154, 207, 210; D.I. # 79, Second Fry Report ¶¶ 168, 217). Further, nothing in the '692 Patent “allows” for the removal of mercury, because there is no cited evidence to the process actually being used to remove mercury in a coal-fired power plant. Additionally, Pl. PFF ¶ 126 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite to the '692 Patent and the declaration of Oehr, neither of which are timely disclosed or qualified expert opinions on the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c).

127. In general, the claimed process of claim 1 and 19 can be thought of as involving five main steps: (1) injection of the thermolabile molecular bromine precursor into flue gas; (2) decomposition of that precursor in flue gas; (3) formation from at least some of the decomposed precursor of what ultimately is molecular bromine; (4) reaction (i.e., oxidation) of the elemental mercury in the flue gas with the molecular bromine to form mercuric bromide (HgBr_2); and (5) adsorption of at least a portion of the mercuric bromide by alkaline solid particles that have been provided in the flue gas. Dkt. 79, Rebuttal Expert Report of Dr. Andrew Fry Regarding Validity, ¶¶ 165-166; Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 79.

Objection: Pl. PFF ¶ 127 is vague and ambiguous because Plaintiffs have not defined “injection,” “flue gas,” “the flue gas,” or “a portion,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “injection,” “flue gas,” and “the flue gas” are hotly contested in this litigation. D.I. # 88,

Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion. Additionally, Pl. PFF ¶ 127 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as unsupported. The requirements of the claims of the ’692 Patent are set forth in those claims. Pl. PFF ¶ 127 does not quote the language of any claim and uses language not present in the claims. D.I. # 38-1, ’692 Patent. Undisputed that this represents Plaintiffs’ position in the litigation.

128. From the time flue gas is created in the boiler from combustion of the coal, the flue gas is roaring downstream and passes through the boiler in a matter of seconds. Dkt. 78, Initial Expert of Dr. Andrew Fry Regarding Infringement, ¶ 170.

Objection: Pl. PFF ¶ 128 is vague and ambiguous because Plaintiffs have not defined “flue gas,” “the boiler,” “the flue gas,” or “roaring,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “flue gas” and “the flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion. Additionally, Pl. PFF ¶ 128 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the First Fry Report at ¶ 170—does not support the stated proposition. Pl. PFF ¶ 128 does not cite any source to support the assertion that “flue gas is created in the boiler from combustion of the coal” or that the “flue gas is roaring downstream and passes through the boiler in a matter of seconds.”

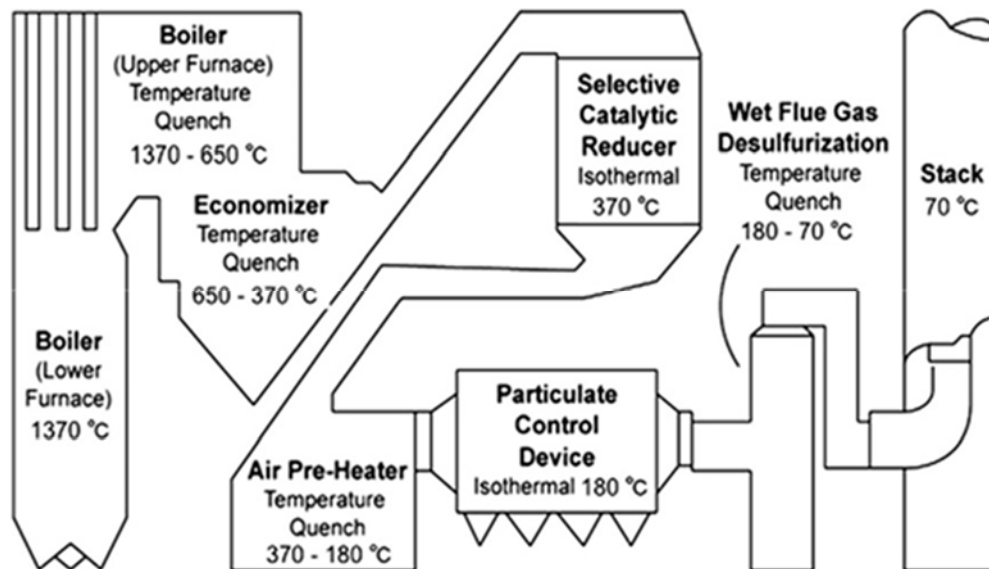
Rather, the paragraph cited says, “[m]oreover, in the EERC report relied on by Defendant Columbia and Defendant Portage in order to qualify for the Section 45 tax credit, the EERC also considered the coal combustion gas in the boiler to be flue gas. PORTAGE_00000847-881 at 859.” D.I. # 78, First Fry Report ¶ 169.

129. The decomposition, reactions and adsorption that are part of the process claimed by the ’692 Patent all take at least some time, and thus it would be understood by a person of ordinary skill in the art that they will not occur at the same physical location in the plant. Dkt. 79, Rebuttal Expert Report of Dr. Andrew Fry Regarding Validity, ¶¶ 165-166; Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 79.

Objection: Pl. PFF ¶ 129 is vague and ambiguous because Plaintiffs have not defined “the process claimed by the ’692 Patent” or “at least some time,” and it is not clear how the terms are being used in this asserted fact. Additionally, Pl. PFF ¶ 129 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the Second Fry Report at ¶ 165–166 and the Third Fry Report at ¶ 79—do not support the stated proposition that “decomposition, reactions and adsorption” “will not occur at the same physical location in the plant.”

130. Dr. Wilcox testified that typical temperatures in a coal-fired power plant can be identified as follows:



Dkt. 81, First Expert Report of Jennifer L. Wilcox, Ph.D. at ¶ 41; C. Klingman Decl. ¶ 20 (Exhibit 19) (Jennifer Wilcox et al., *Schematic of a Coal-Fired Power Plant* 90-91 INT'L J. COAL GEOLOGY 5 (2012)).

Response: Undisputed.

131. The bromide compound precursor can decompose in accordance with the invention at any temperature sufficiently hot to cause decomposition, which would include the combustion zone temperatures. Dkt. 38-3, Declaration of Klaus Oehr at ¶ 6.

Objection: Pl. PFF ¶ 131 is vague and ambiguous because Plaintiffs have not defined “[t]he bromide compound precursor,” “the invention,” or “the combustion zone temperatures,” and it is not clear how the terms are being used in this asserted fact. Additionally, Pl. PFF ¶ 131 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the Oehr Declaration at ¶ 6—does not support the stated proposition. The cited paragraph does not mention anything “in accordance with the invention” and does not

discuss what temperature would be sufficient to break down the thermolabile molecular halogen precursor. For example, Pl. PFF ¶ 131 uses the terms “decompose” and “combustion,” but these terms do not appear in the asserted claims of the ’692 Patent. Moreover, Pl. PFF ¶ 131 uses the words “bromide compound precursor” where the ’692 Patent requires “thermolabile molecular bromine precursor.” D.I. # 81, First Wilcox Report ¶¶ 67–68. Additionally, Pl. PFF ¶ 131 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite to the declaration of Oehr, who is not a timely disclosed or qualified expert on the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c).

132. Dr. Wilcox testified that combustion zone temperatures are about 1370°C. Dkt. 81, First Expert Report of Jennifer L. Wilcox, Ph.D. at ¶ 43; C. Klingman Decl. ¶ 20 (Exhibit 19) (Jennifer Wilcox et al., *Schematic of a Coal-Fired Power Plant* 90-91 INT’L J. COAL GEOLOGY 5 (2012)).

Response: Disputed as unsupported. Plaintiffs’ cited evidence—paragraph 43 of the First Wilcox Report and article by Wilcox—does not support the stated proposition. Rather, the cited report says, “[t]he highest temperature in the combustion zone is typically ~ 1370 °C,” not “that [the] combustion zone temperatures are about 1370°C.” D.I. # 81, First Wilcox Report ¶ 43.

133. It is undisputed that thermolabile molecular bromine precursors will decompose at combustion zone temperatures. *Compare* Dkt. 77, Deposition Transcript of Andrew Fry, Ph.D., dated April 4, 2019 at 150:12–20 and 191:3–9 *with* Dkt. 74, Deposition Transcript of Jennifer Wilcox, Ph.D., dated March 29, 2019 at 146:15–25; Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶ 90.

Response: Undisputed.

134. The temperatures in the combustion zone are too hot to permit the formation of molecular bromine or the resulting oxidation of mercury. Dkt. 80, Reply Expert Report of

Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 84–85.

Objection: Pl. PFF ¶ 134 is vague and ambiguous. Plaintiffs have not defined “the combustion zone,” and it is not clear how the term is being used in this asserted fact.

Response: Disputed. Pl. PFF ¶ 134 appears to present a fact as if it is uniformly true for all combustors, but that is not necessarily the case. The record shows that temperatures vary among combustors and therefore affect the formation of molecular bromine. D.I. # 113, Def. PFF ¶¶ 332 (D.I. # 79, Second Fry Report ¶¶ 200, 226, 247, 250; D.I. # 83, Third Wilcox Report ¶ 6; D.I. #77, Fry Dep. 11:22–13:23 (testifying that whether MgBr_2 would be a thermolabile molecular bromine precursor depends on 10 factors), 142:9–143:4).

135. The temperature at which molecular bromine can form, or at which mercury can be oxidized by molecular bromine, is dependent upon both the temperature, and the reaction time, which is the time during which the chemical reaction may take place. Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 84-85.

Objection: Pl. PFF ¶ 135 is vague and ambiguous. Plaintiffs have not defined “can form” or “can be oxidized,” and it is not clear how the terms are being used in this asserted fact. Moreover, Pl. PFF ¶ 135 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed. The record shows that molecular bromine begins to form immediately and will inevitably form in certain temperature ranges. The same is true for the oxidation to mercuric bromide. D.I. # 113, Def. PFF ¶¶ 243, 247–54, 341, 358, 359, 361, 362, 364 (D.I. # 38-9, Respondent Hazelmere’s Brief (Dec. 20, 2012), at 407, 408, 410, 413– 415; D.I. # 95, Mark Decl. (Apr. 16,

2019) Ex. 156, F. Paulik et. al., Examination of the Decomposition of CaBr_2 With the Method of Simultaneous TG, DTG, DTA and EGA, 15 JOURNAL OF THERMAL ANALYSIS 271 (1978); D.I. # 77, Fry Dep. 65:11–25; D.I. # 81, First Wilcox Report ¶ 110; D.I. # 80, Third Fry Report ¶ 84; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 157, S. Niksa et al., *Process Chemistry of Br Addition to Utility Flue Gas for Hg Emissions Control*, at 1023; D.I. # 82, Second Wilcox Report ¶ 76; D.I. # 38-6, Amendment (Aug. 2003) at 9; D.I. # 38-3, Oehr Decl. (May 17, 2016) ¶ 7).

136. To form molecular bromine, the temperature must be no hotter than 850°C. Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 84-85; Dkt. 77, Deposition Transcript of Andrew Fry, Ph.D., dated April 4, 2019, at 65:15-25.

Objection: Pl. PFF ¶ 136 is vague and ambiguous. Plaintiffs have not defined “to form,” and it is not clear how the term is being used in this asserted fact. Further, it is unclear what PFF ¶ 136 is discussing forming molecular bromine from.

Response: Disputed. The record shows that molecular bromine begins to form immediately and will inevitably form in certain temperature ranges. The same is true for the oxidation to mercuric bromide. D.I. # 113, Def. PFF ¶¶ 242–44, 247–54, 341, 358–64 (D.I. # 38-9, Respondent Hazelmere’s Brief (Dec. 20, 2012), at 407, 408, 410, 413, 414, 415; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 156, F. Paulik et. al., Examination of the Decomposition of CaBr_2 With the Method of Simultaneous TG, DTG, DTA and EGA, 15 JOURNAL OF THERMAL ANALYSIS 271 (1978); D.I. # 77, Fry Dep. 65:11–25; D.I. # 81, First Wilcox Report ¶ 110; D.I. # 80, Third Fry Report ¶ 84; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 157, S. Niksa et al., *Process Chemistry of Br Addition to*

Utility Flue Gas for Hg Emissions Control, at 1023; D.I. # 77, Fry Dep. 65:11–25; D.I. # 82, Second Wilcox Report ¶ 76; D.I. # 38-6, Amendment (Aug. 2003) at 9; D.I. # 38-3, Oehr Decl. (May 17, 2016) ¶ 7); D.I. # 81, First Wilcox Report ¶ 110.

137. For the molecular bromine to then oxidize mercury, the temperature must be no hotter than 500°C. C. Klingman Decl. ¶ 21 (Exhibit 20) (Niksa et al. *Stephen Niksa, Process Chemistry of Br Addition to Utility Flue Gas for Hg Emissions Control*, 24 ENERGY & FUELS, 1020 (2010)).

Objection: Pl. PFF ¶ 137 is vague and ambiguous. Plaintiffs have not defined “the molecular bromine,” and it is not clear how the term is being used in this asserted fact.

Response: Disputed. The record shows that molecular bromine begins to form immediately and will inevitably form in certain temperature ranges. The same is true for the oxidation to mercuric bromide. D.I. # 113, Def. PFF ¶¶ 242–44, 247–54, 341, 358–64 (D.I. # 38-9, Respondent Hazelmer’s Brief (Dec. 20, 2012), at 407, 408, 410, 413, 414, 415; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 156, F. Paulik et. al., *Examination of the Decomposition of CaBr₂ With the Method of Simultaneous TG, DTG, DTA and EGA*, 15 JOURNAL OF THERMAL ANALYSIS 271 (1978); D.I. # 77, Fry Dep. 65:11–25; D.I. # 81, First Wilcox Report ¶ 110; D.I. # 80, Third Fry Report ¶ 84; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 157, S. Niksa et al., *Process Chemistry of Br Addition to Utility Flue Gas for Hg Emissions Control*, at 1023; D.I. # 77, Fry Dep. 65:11–25; D.I. # 82, Second Wilcox Report ¶ 76; D.I. # 38-6, Amendment (Aug. 2003) at 9; D.I. # 38-3, Oehr Decl. (May 17, 2016) ¶ 7); D.I. # 81, First Wilcox Report ¶ 110. Additionally, Pl. PFF ¶ 137 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent

expert opinion. Rather, Plaintiffs cite the declaration of Klingman and an unsponsored exhibit. Klingman does not have the requisite personal knowledge to testify about the topic. Nor is Klingman a timely disclosed or qualified expert on the topic. Accordingly, this evidence is inadmissible hearsay and unqualified expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c), Fed. R. Evid. 702, and Fed. R. Evid. 802.

138. One benefit of the '692 Patent is that it represented a major advance in environmental protection, providing a practical way for coal-fired power plants to remove mercury from flue gas before it enters the atmosphere. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶¶ 77-78, 81.

Objection: Pl. PFF ¶ 138 is vague and ambiguous. Plaintiffs have not defined “benefit,” “major advance,” “practical,” or “flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Further, Pl. PFF ¶ 138 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed. A POSA in 2001, which is prior to the '692 Patent, would have known that one method for reducing mercury emissions in coal-fired power plants was activated carbon injection. D.I. # 113, Def. PFF ¶¶ 166–169 (D.I. # 82, Second Wilcox Report ¶¶ 53, 69; D.I. # 81, First Wilcox Report ¶ 53; D.I. #78, First Fry Report ¶ 66; D.I. # 77, Fry Dep. 75:23–77:4). Further, there was no major advance because the '692 Patent claims are directed to natural phenomena for which there is no innovative process and there is no new or non-obvious invention claimed in that patent. D.I. # 113, Def. PFF ¶ 342 (D.I. # 38-1,

'692 Patent, at Abstract; Claims 1 and 19; D.I. # 38-3, Oehr Decl. (May 17, 2016) ¶ 7); D.I. # 113, Def. PFF ¶¶ 443–448 (D.I. # 81, First Wilcox Report ¶¶ 154, 207, 210; D.I. # 79, Second Fry Report ¶¶ 168, 217).

139. The '692 Patent provided a practical way for coal-fired power plants to remove mercury from flue gas before it enters the atmosphere without requiring expensive new backend particulate collection equipment. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶¶ 77-78, 81.

Objection: Pl. PFF ¶ 139 is vague and ambiguous. Plaintiffs have not defined “practical” or “flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Further, Pl. PFF ¶ 134 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as unsupported. It is not the '692 Patent that provides a practical way for coal-fired power plants to remove mercury; it is the underlying chemistry that results in the capture of mercury from gas streams of particular devices. The '692 Patent is not an innovative process, because the '692 Patent claims are directed to natural phenomena for which there is no innovative process, and there is no new or non-obvious invention claimed in that patent. D.I. # 113, Def. PFF ¶ 342 (D.I. # 38-1, '692 Patent at Abstract, Claims 1 and 19; D.I. # 38-3, Oehr Decl. (May 17, 2016) ¶ 7); D.I. # 113, Def. PFF ¶¶ 443–448 (D.I. # 81, First Wilcox Report ¶¶ 154, 207, 210; D.I. # 79, Second Fry Report ¶¶ 168, 217). Moreover, there already was one “practical way” for coal-fired power plants to remove mercury from flue gas prior to the '692 Patent. D.I. # 113, Def. PFF ¶¶

166–169 (D.I. # 82, Second Wilcox Report ¶¶ 53, 69; D.I. # 81, First Wilcox Report ¶ 53; D.I. # 78, First Fry Report ¶ 66; D.I. # 77, Fry Dep. 75:23–77:4).

140. The '692 Patent provided a method of mercury capture that does not adversely affect the fly ash, so that the plants can continue to sell that for cement production. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶¶ 77-78, 81.

Objection: Pl. PFF ¶ 140 is vague and ambiguous. Plaintiffs have not defined “the fly ash,” and it is not clear how the term is being used in this asserted fact. Additionally, Pl. PFF ¶ 140 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph. Further, Pl. PFF ¶ 140 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as unsupported. It is not the '692 Patent that provides a method of mercury capture that does not adversely affect the fly ash; it is the underlying chemistry that results in the mercury capture that does not adversely affect the fly ash. The '692 patent is not an innovative process, because the '692 Patent claims are directed to natural phenomena for which there is no innovative process, and there is no new or non-obvious invention claimed in that patent.

D.I. # 113, Def. PFF ¶ 342 (D.I. # 38-1, '692 Patent at Abstract; Claims 1 and 19; D.I. # 38-3, Oehr Decl. (May 17, 2016) ¶ 7); D.I. # 113, Def. PFF ¶¶ 443–448 (D.I. # 81, First Wilcox Report ¶¶ 154, 207, 210; D.I. # 79, Second Fry Report ¶¶ 168, 217).

141. The process used by Defendant Portage to manufacture Refined Coal using the Chem-Mod Process involves Defendant Portage operating the crusher house. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶¶ 156, 163–164.

Response: Undisputed to the extent “Chem-Mod Process” has the meaning understood in Pl. PFF ¶ 19.

142. Defendant Portage purchases the untreated coal that comes into the crusher house, and in the crusher house, applies MerSorb and S-Sorb, and crushes the coal with the additives applied. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶ 156.

Objection: Pl. PFF ¶ 142 is vague and ambiguous. Plaintiffs have not defined “the untreated coal that comes into the crusher house,” and it is not clear how the term is being used in this asserted fact. Additionally, Pl. PFF ¶ 142 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Further, Pl. PFF ¶ 142 is duplicative of Pl. PFF ¶¶ 14, 830.

Response: Disputed as unsupported and contrary to the evidence. Portage takes ownership of the coal when it is loaded onto rail cars in the coal yard. D.I. # 113, Def. PFF ¶ 825 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 8, Portage – WPL Coal Feedstock Purchase Agreement (Sept. 6, 2016), Article I, Definitions; D.I. # 70, Panczak Dep. 148:9–148:14; Case 280 D.I. # 73, Whittaker Dep. 36:16–37:2). Moreover, Plaintiffs’ expert stated that the additives and the coal must be mixed in order to form Refined Coal and that Refined Coal is made prior to the coal being crushed. D.I. #78, First Fry Report ¶ 156.

143. The resulting crushed treated coal is “Refined Coal.” Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶ 156.

Objection: Pl. PFF ¶ 143 is vague and ambiguous. Plaintiffs have not defined “[t]he resulting crushed treated coal,” and it is not clear how the term is being used in this asserted fact.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs' cited evidence—the First Fry Report at ¶ 156—does not support the stated proposition. Rather, the record shows that the additives and the coal must be mixed in order to form Refined Coal and that Refined Coal is made prior to the coal being crushed. The Second Wilcox Report at ¶ 91 states, “[t]he addition of aqueous calcium bromide in MerSorb to coal, the addition of S-Sorb to coal, and the pulverization of the resulting refined coal, creates a complex new chemical form.” D.I. # 82, Second Wilcox Report ¶ 91.

144. Refined coal is a mixture of crushed coal mixed with calcium bromide solution (MerSorb) and alkaline particles (S-Sorb). Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶ 156.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs' cited evidence—the First Fry Report at ¶ 156—does not support the stated proposition. Rather, the record shows that Refined Coal is made prior to the coal being crushed. The First Fry Report at ¶ 156 states, “Defendant Portage takes that raw, untreated coal and mixes it with the Chem-Mod Solution containing the MerSorb and S-Sorb to make ‘Refined Coal.’” D.I. #78, First Fry Report ¶ 156. Further, the Second Wilcox Report at ¶ 91 states, “[t]he addition of aqueous calcium bromide in MerSorb to coal, the addition of S-Sorb to coal, and the pulverization of the resulting refined coal, creates a complex new chemical form.” D.I. # 82, Second Wilcox Report ¶ 91. Finally other chemicals, such as potassium iodide, may be used to make Refined Coal without using calcium bromide. D.I. # 71, Batanian Dep. 109:3–110:10.

145. Defendant Portage sells this Refined Coal to Columbia, who then delivers it by conveyor belt to the coal bunkers. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶ 156.

Response: Undisputed; however, Portage no longer sells Refined Coal to Columbia, because Portage assigned its rights and obligations under its Refined Coal agreements with Columbia, and leased its Refined Coal equipment, to Erie Fuels in July 2018. D.I. # 113, Def. PFF ¶¶ 32–33 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 147, Aug. 22, 2016 Email, at WPL_00012684; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 148, “Columbia Refined Coal Approval Request,” at WPL_00012687; D.I. # 66, Lokenvitz Dep. 290:301:23; D.I. # 73, Whittaker Dep. 46:7–46:9.; 50:11–50:14; 166:18–167:5; 167:21–167:25; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 149, Panczak Ex. 15, July 17, 2015 email, at PORTAGE_00094295–296; D.I. # 70, Panczak Dep. 217:9–223:25 D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 150, Panczak Ex. 16, Dec. 2, 2015 Email, at PORTAGE_0095220–221; D.I. # 70, Panczak Dep. 224:1–231:4; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 47, Berkimer Ex. 6, Portage Fuels October 2016 Operating Report, at PORTAGE_00000451; D.I. # 62, Berkimer Dep. 47:3–54:1; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 7, Portage Assignment and Assumption Agreement (July 31, 2018)).

146. Columbia then pulverizes the Refined Coal and injects the Refined Coal into the flue gas of the combustion zone of Columbia’s Unit 1 facility. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶ 156.

Objection: Pl. PFF ¶ 146 is vague and ambiguous. Plaintiffs have not defined “the Refined Coal,” “injects,” “the flue gas,” or “the combustion zone,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “injects” and “flue gas” are hotly contested in this litigation. D.I. # 88, Amended

Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion. Additionally, Pl. PFF ¶ 146 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs' argument.

Response: Disputed. The product formed upon combustion is combustion gas, not flue gas. D.I. # 81, First Wilcox Report ¶¶ 42–43, 98–101. The record shows that flue gas is not created in the combustion zone. D.I. # 81, First Wilcox Report ¶¶ 42–43, 98–101; D.I. # 82, Second Wilcox Report ¶ 46.

147. In doing so, the calcium bromide of the MerSorb, which here serves as a thermolabile molecular bromine precursor, is injected into the flue gas in the combustion zone. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement at ¶ 157–170.

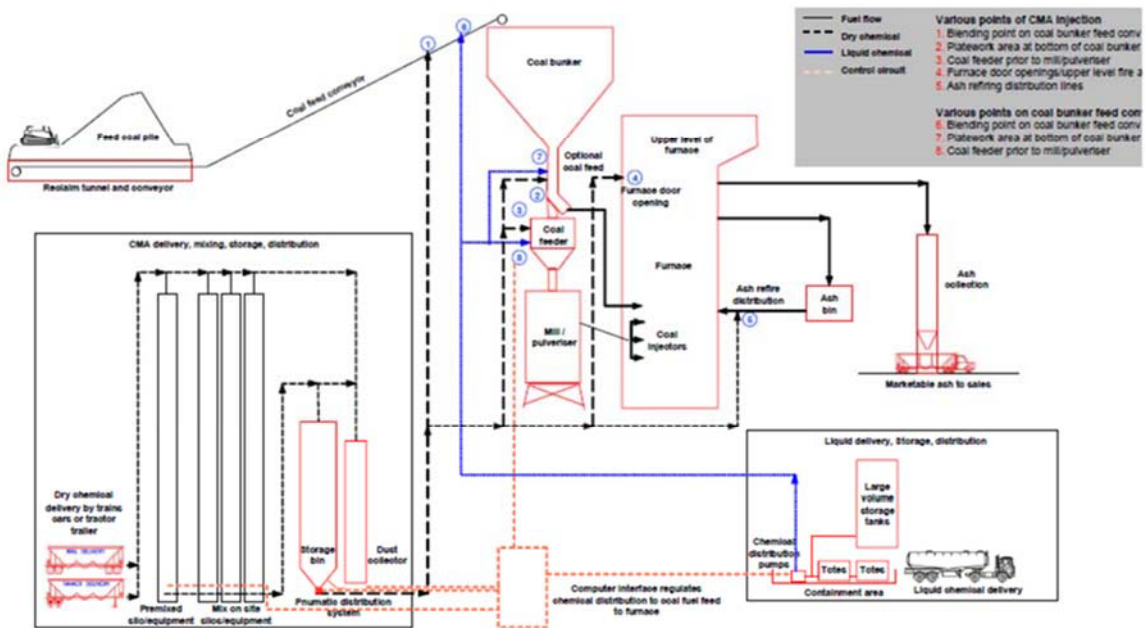
Objection: Pl. PFF ¶ 147 is vague and ambiguous. Plaintiffs have not defined “doing so,” “injected,” “the flue gas,” or “the combustion zone,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “injected” and “the flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion. Further, Pl. PFF ¶ 147 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Sec. I.B.6, because it simply recites Plaintiffs' argument.

Response: Disputed. Calcium bromide of the MerSorb is not injected into the flue gas in the combustion zone. Rather, the record shows Refined Coal is blown into the furnace at Columbia Unit 1. D.I. # 113, Def. PFF ¶¶ 107, 109, 856. The product formed upon combustion is combustion gas, not flue gas. D.I. # 81, First Wilcox Report ¶¶ 42–43, 98–101. The record shows that flue gas is not created in

the combustion zone. D.I. # 81, First Wilcox Report ¶¶ 42–43, 98–101; D.I. # 82, Second Wilcox Report ¶ 46.

148.

Reagent Injection Options



ChemMod

[REDACTED]

[REDACTED]

149. Once injected, the calcium bromide in the MerSorb (which is a thermolabile molecular bromine precursor), decomposes under the combustion temperatures of the furnace, and the resulting components will, further downstream, lead to formation of molecular bromine, which reacts with the elemental mercury in the flue gas to produce oxidized mercury compounds. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 135—141, 151–172; Dkt. 79, Rebuttal Expert Report of Dr. Andrew Fry Regarding Validity, ¶¶ 79-82.

Objection: Pl. PFF ¶ 149 is vague and ambiguous. Plaintiffs have not defined “injected,” “the combustion temperatures of the furnace,” or “the flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “injected” and “the flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion. Further, Pl. PFF ¶ 149 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed in part. Disputed that MerSorb is injected. Rather, the record shows Refined Coal is blown into the furnace at Columbia Unit 1. D.I. # 113, Def. PFF ¶¶ 107, 109, 856. Undisputed that MerSorb decomposes under the combustion temperatures of the furnace, and the resulting components will, further downstream, lead to formation of molecular bromine, which reacts with the elemental mercury in the flue gas to produce oxidized mercury compounds.

150. The mercuric bromide will adsorb on alkaline particles from the S-Sorb and the alkaline fly ash, to form mercury-bearing particles which are filtered from the flue gas. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 173–181.

Objection: Pl. PFF ¶ 150 is vague and ambiguous. Plaintiffs have not defined

“[t]he mercuric bromide,” “the alkaline fly ash,” or “the flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the term “the flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Undisputed with Plaintiffs’ understanding of the terms.

151. As can be seen, the process practiced by Defendants is exactly the Oehr claimed process. *Compare* Dkt. 38-1, ’692 Patent at claim 1 *with* Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 151–181.

Objection: Pl. PFF ¶ 151 is vague and ambiguous. Plaintiffs have not defined “seen,” “the process practiced by Defendants” or “the Oehr claimed process” and it is not clear how the terms are being used in this asserted fact. Further, Pl. PFF ¶ 150 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I, because it uses legal characterization with a reference to “the Oehr claimed process,” Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the First Fry Report at ¶¶ 151–181—does not support the stated proposition. Rather, the record shows that the creation of Refined Coal at Arbor and Portage for use at the Weston Power Plant and the Columbia Energy Center is distinct from the “Oehr claimed process.” *Compare* D.I. # 113, Def. PFF ¶¶ 794–807, 821–835, 836–859 *with* D.I. # 113, Def. PFF ¶¶ 279–314; D.I. # 82, Second Wilcox Report ¶¶ 83–96.

152. Defendants’ proposed construction of “injecting . . . into said flue gas” is

“injecting into the flue gas stream after the boiler and before the stack outlet.” Dkt. 88, Amended Joint Table of Terms Requiring Construction, p. 3.

Response: Undisputed. To clarify, Defendants’ proposed construction of “injecting . . . into said flue gas” appears on page 2 of D.I # 82, Amended Joint Table of Terms Requiring Construction.

153. During her deposition on March 29, 2019, Dr. Wilcox testified as follows:

Q. So there would be infringement if plaintiffs --

A. Right.

Q. -- claim constructions were adopted?

A. Right, right.

Q. So we talked over each other. So there would be infringement in your opinion if plaintiffs’ claim constructions were adopted?

A. Hypothetically, if I agreed with all of the loose claims and their constructions, then, yes.

Dkt. 74 (Deposition Transcript of Jennifer Wilcox, Ph.D., March 29, 2019) at 192:25–193:15.

Objection: PFF ¶ 153 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites an expert’s opinion.

Additionally, Pl. PFF ¶ 153 is duplicative of Pl. PFF ¶ 803.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the deposition transcript of Wilcox at 192:25–193:15—does not support the stated proposition. Rather, the cited portion of Wilcox’s transcript reads:

Q. So there would be infringement if plaintiffs --

A Right.

Q. -- claim constructions were adopted?

A. Right, right.

MR. EVALL: Objection to form and lack of foundation.

Q. So we talked over each other. So there would be infringement in your opinion if plaintiffs’ claim constructions were adopted?

MR. EVALL: Objection to form, lack of foundation, and incomplete hypothetical.

A. Hypothetically, if I agreed with all of the loose claims and their constructions, then, yes.

D.I. # 74, Wilcox Dep. 192:25–193:15. That Wilcox so answered does not make

the testimony admissible for all purposes, however.

154. The Chem-Mod process was developed for the purpose of generating Section 45 Tax Credits. Dkt. 63, Transcript of Douglas Comrie at 67:10-16.

Objection: Pl. PFF ¶ 154 is vague and ambiguous. Plaintiffs have not defined “developed,” “purpose” or “Section 45 Tax Credits” and it is not clear how the terms are being used in this asserted fact.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the deposition transcript of Comrie at 67:10–16—does not support the cited proposition. Comrie did not testify that the Chem-Mod Process was “developed for the purpose of generating Section 45 Tax Credits.” Rather, the record shows that Comrie developed the Chem-Mod Process before becoming aware of the availability of tax credits under IRC § 45; the process was later refined to become tax-credit eligible. D.I. # 63, Comrie Dep. 28:25–29:19; 67:10–16.

155. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

156. Congress responded to the mercury crisis identified by the EPA by concluding that reduction of mercury emissions was a critical national interest, and enacted Internal Revenue Code Section 45, which is referred to as the Renewable Electricity Production Tax Credit (the “Section 45 Tax Credit”). Dkt. 86, Expert Report of Walter Bratic, dated February 7, 2019, ¶ 35; Dkt 78-25, Opening Report of Andrew Fry, Ph.D., Ex Z (Office of Chief Counsel, Internal Revenue Service Memorandum Number AM2018-002, February 28, 2018) at p. 1.

Objection: Pl. PFF ¶ 156 is vague and ambiguous. Plaintiffs have not defined “the mercury crisis identified by the EPA” or “critical national interest,” and it is not clear how the terms are being used in this asserted fact. Additionally, Pl. PFF ¶ 156 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—IRS Memorandum Number AM2018-002 at 1 (the “IRS Memorandum”)—does not support the stated proposition. The IRS Memorandum makes no mention of a “mercury crisis” or reduction of mercury emissions being a “critical national interest,” either on page 1 of the report or anywhere else. D.I. # 78-25, Opening Report of Andrew Fry (Exhibit Z) (Office of Chief Counsel, Internal Revenue Service Memorandum Number AM2018-002, February 28, 2018). Additionally, to the extent the IRS Memorandum is offered to prove Congress’ conclusions and actions, the evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

157. Section 45 provided for tax credits for the sale of refined coal, which was defined as coal that, when combusted in a coal-fired power plant, results in a reduction of at least 20% of the emissions of nitrogen oxide and at least 40% of the emissions of either sulfur dioxide or mercury released as compared to burning raw, untreated coal. Dkt. 86, Expert Report of Walter

Bratic, dated February 7, 2019, at ¶¶ 35–36; Dkt 78-25, Opening Report of Andrew Fry, Ph.D., Ex. Z (Office of Chief Counsel, Internal Revenue Service Memorandum Number AM2018-002, February 28, 2018) at pp. 1–2; Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 142-46.

Objection: Pl. PFF ¶ 157 is vague and ambiguous. Plaintiffs have not defined “Section 45” or “raw, untreated coal,” and it is not clear how the terms are being used in this asserted fact. Further, Pl. PFF ¶ 157 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed. “Section 45” did not provide for tax credits for the sale of refined coal as defined in Pl. PFF ¶ 157. Rather, the record shows that the statute codified at 26 U.S.C. § 45 (“IRC § 45”) as amended in 2008 provided for tax credits for the sale of refined coal as defined in Pl. PFF ¶ 157. IRC § 45 was enacted in 2004, and that statute had emission reduction requirements different than those stated in Pl. PFF ¶ 157. IRC § 45 was amended in 2008, and amended again in 2010. D.I. # 113, Def. PFF ¶¶ 449–466 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 37, 2004 Statute §§ 710(a) and (b); D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 38, 2008 Statute §§ 101(b); D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 39, 2010 Statute).

158. The Section 45 Tax Credit amount for Refined Coal was \$6.810 per ton in 2016, \$6.909 per ton in 2017, and \$7.03 per ton in 2018. Dkt. 86, Expert Report of Walter Bratic, dated February 7, 2019, at ¶ 36.

Objection: Pl. PFF ¶ 158 is vague and ambiguous. Plaintiffs have not defined “ton,” and it is not clear how the terms are being used in this asserted fact. Further, Pl. PFF ¶ 158 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions

within the same numbered paragraph.

Response: Disputed in part. Disputed that the values in Pl. PFF ¶ 158 apply “per ton.” Rather, the values apply only to Refined Coal actually *sold*. D.I. # 113, Def. PFF ¶¶ 449–466 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 37, 2004 Statute §§ 710(a) and (b); D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 38, 2008 Statute §§ 101(a) and (b); D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 39, 2010 Statute). Undisputed that the values in Pl. PFF ¶ 158 are correct representations of the Section 45 Tax Credit in the years stated per ton of refined coal sold.

159. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

160. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

161. The primary purpose of Portage is to generate and benefit from the production of Section 45 tax credits. *See, e.g.*, Dkt. 86 (Expert Report of Walter Bratic, dated February 7, 2019) at ¶ 63; Dkt. 66 (Deposition of Jerald Laverne Lokenvitz, December 5, 2018) at p. 253:13–119.

Objection: Pl. PFF ¶ 161 is vague and ambiguous. Plaintiffs have not defined “primary purpose” or “benefit,” and it is not clear how the terms are being used in this asserted fact. Additionally, Pl. PFF ¶ 161 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation is not correct, and Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the deposition transcript of Lokenvitz at 253:13–119—does not support the asserted proposition. Lokenvitz further testified that “Section 45 doesn’t mean anything to me.” D.I. # 66, Lokenvitz Dep. 220:23–25.

162. [REDACTED]

[REDACTED]

163. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

164.

[REDACTED]

[REDACTED]

165.

[REDACTED]

[REDACTED]

[REDACTED]

166.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

167. The '692 Patent was the subject of an Inter Partes Reexamination before the United States Patent and Trademark Office ("USPTO"), including the Patent and Trial Appeal Board ("PTAB"). Dkt. 54, Defendants' Answer to Plaintiffs' Second Amended Complaint for

Patent Infringement, at Counterclaims ¶ 14; Dkt. 55, Plaintiffs' Response to Defendants' Counterclaims in Answer to Second Amended Complaint, ¶ 14; Dkt. 38-7, Plaintiffs' Second Amended Complaint, Ex F, p. 15 and Dkt. 38-10, p. 362.

Objection: Pl. PFF ¶ 167 is duplicative of Pl. PFF ¶ 29.

Response: Undisputed.

168. The PTAB affirmed the validity of claims 1, 8–19, 22, and 26–33 of the '692 Patent. Dkt. 38-7, Plaintiffs' Second Amended Complaint, Ex F, p. 15 and Dkt. 38-10, p. 362.

Objection: Pl. PFF ¶ 168 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I, because it uses legal characterization with a reference to the PTAB "affirm[ing] the validity of claims" in the '692 Patent.

Response: Disputed. To clarify, the PTAB decision regarding the validity of the validity of the claims discussed in Pl. PFF ¶ 168 appears on pages 362–363. Further, The PTAB did not "affirm[] the validity of claims 1, 8–19, 22, and 26–33 of the '692 Patent." Rather, each of those claims was subject to amendment by the PTAB. D.I. # 38-1, '692 Patent, Inter-Partes Reexamination Certificate, at 2:30–40."

169. The USPTO issued an Inter Partes Reexamination Certificate for the '692 Patent on April 7, 2014. Dkt. 54, Defendants' Answer to Plaintiffs' Second Amended Complaint for Patent Infringement, at Counterclaims ¶ 14; Dkt. 55, Plaintiffs' Response to Defendants' Counterclaims in Answer to Second Amended Complaint, ¶ 14; Dkt. 38-1, '692 Patent, at Inter Partes Reexamination Certificate.

Response: Undisputed.

170. The '692 Patent was asserted by Nalco against Chem-Mod, LLC in an action filed in the Northern District of Illinois ("N.D. Ill. Action"). C. Klingman Decl. ¶ 22 (Exhibit 21) (Nalco Company v. Chem-Mod LLC, Civil Action No. 1:14-cv-02510 (N.D. Ill. April 8, 2014) at Dkt. 1 (Complaint)).

Objection: Pl. PFF ¶ 170 is duplicative of Pl. PFF ¶ 865.

Response: Undisputed.

171. In the N.D. Ill. Action, the district court dismissed Nalco Company's complaint three times for failure to state a claim. C. Klingman Decl. ¶ 23 (Exhibit 22) (Nalco Company v.

Chem-Mod LLC, Civil Action No. 1:14-cv-02510 (N.D. Ill. April 8, 2014, Dkt. 59, Order Dismissing Nalco's Amended Complaint, dated February 4, 2015), ¶ 24 (Exhibit 23) (Dkt.106, Order Dismissing Nalco's Third Amended Complaint), and ¶ 25 (Exhibit 24) (Dkt.118, Order Dismissing Nalco's Fourth Amended Complaint).

Response: Disputed in part. Disputed that the district court dismissed Nalco Company's complaint a third time "for failure to state a claim." Rather, the district court's third dismissal was with prejudice. D.I. # 113, Def. PFF ¶¶ 746, 754, 759 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 117, Mem. Opinion and Order, *Nalco Company v. Chem-Mod LLC*, 1:14-CV-02510, D.I. # 60 (N.D. Ill. Feb. 4, 2015), at 6; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 119, Order Granting Defs. Mot. to Dismiss, *Nalco Company v. Chem-Mod LLC*, 1:14-CV-02510, D.I. # 106 (N.D. Ill. Oct. 15, 2015); D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 122, Order Granting Defs. Mot. to Dismiss, *Nalco Company v. Chem-Mod LLC*, 1:14-CV-02510, D.I. # 118 (N.D. Ill. Apr. 20, 2016)). Undisputed that the district court dismissed Nalco Company's complaint twice for failure to state a claim without prejudice.

172. In the N.D. Ill. Action, Nalco timely appealed the district court's final decision to the Federal Circuit. C. Klingman Decl. ¶ 26 (Exhibit 25) (Notice of Docketing, *Nalco Co. v. Chem-Mod, LLC*, No. 14-cv-2510 (N.D. Ill. Nov. 16, 2015) at Dkt. 140).

Response: Disputed. Nalco did not "timely appeal" the "district court's final decision" to the Federal Circuit in the N.D. Ill. Action. Rather, Nalco appealed the district court's final judgment. D.I. # 113, Def. PFF ¶ 770 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 130, Notice of Appeal, *Nalco Company v. Chem-Mod LLC*, 1:14-CV-02510, D.I. # 138 (N.D. Ill. Oct. 12, 2016)).

173. The Federal Circuit reversed the district court's dismissal of Nalco's fourth amended complaint, except with respect to the district court's dismissal of Nalco's allegations of divided infringement for commercial applications, and remanded for further proceedings. C. Klingman Decl. ¶ 27 (Exhibit 26) (*Nalco Co. v. Chem-Mod LLC*, 883 F.3d 1337 (Fed. Cir. 2018)

(reversing the district court's dismissal of Nalco's Fourth Amended Complaint)).

Response: Undisputed.

174. On April 19, 2019, Nalco voluntarily dismissed the N.D. Ill. Action. C. Klingman Decl. ¶ 29 (Exhibit 28) (Nalco Co. v. Chem-Mod LLC, No. 14-cv-2510 (N.D. Ill. Nov. 16, 2015)) at Dkt. 147 (Notice of Voluntary Dismissal Without Prejudice at 1-2) and ¶ 30 (Exhibit 29) (Dkt. 148 and Notification of Docket Entry).

Response: Disputed. Nalco did not voluntarily dismiss the N.D. Ill. action on April 19, 2019. Rather, Nalco voluntarily dismissed the N.D. Ill. action on April 19, 2018. D.I. # 113, Def. PFF ¶ 875 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 132, Pl. Nalco Co.'s Notice of Voluntary Dismissal Without Prejudice, *Nalco Company v. Chem-Mod LLC*, 1:14-cv-02510, D.I. # 147 (N.D. Ill. Apr. 19, 2018)).

175. Claim 19 provides as follows:

19. A method of treating flue gas that contains elemental mercury, wherein the flue gas is produced during the combustion of coal, said method comprising the steps of: (a) injecting into the flue gas a bromide compound that is a thermolabile molecular bromine precursor selected from the group consisting of calcium compounds and magnesium compounds, whereby the elemental mercury is oxidized to form mercuric bromide; and (b) providing solid alkaline particles in said flue gas upstream of a particulate collection device, whereby at least a portion of the mercuric bromide produced at Step (a) is adsorbed by the solid alkaline particles.

Dkt. 38-1, U.S. Patent No. 6,808,692, Claim 19.

Response: Undisputed that the '692 Patent contains the text of Claim 19.

176. The claim terms identified by the Plaintiffs are: "flue gas," "injecting," and "thermolabile." Dkt. 88, Amended Joint Table of Terms Requiring Construction, pg. 2.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs' cited evidence—the parties' Amended Joint Table of Terms Requiring Construction—does not support the stated proposition. "Thermolabile" is not a claim term identified by Plaintiffs in the Amended Joint Table. Rather, the parties identified the following as an agreed-upon term: "a bromide compound that is a

thermolabile molecular precursor,” and “the thermolabile molecular bromine precursor.” D.I. # 88, Amended Joint Table of Terms Requiring Construction, at 3.

177. The claim terms identified by the Defendants are: “‘coal combustion flue gas’; ‘said flue gas’; ‘the flue gas’; ‘flue gas . . . wherein the flue gas is produced during the combustion of coal’”; “‘injecting . . . into said flue gas’; ‘injecting into the flue gas’”; “‘a bromide compound that is a thermolabile molecular bromine precursor’; ‘the thermolabile molecular bromine precursor.’” Dkt. 88, Amended Joint Table of Terms Requiring Construction, pg. 3.

Response: Disputed in part. Pl. PFF ¶ 177 correctly identifies the claim terms identified by Defendants, but the term “thermolabile molecular bromine precursor” was agreed upon by both parties and not only identified by Defendants. D.I. # 88, Amended Joint Table of Terms Requiring Construction, at 3.

178. If “injecting” is construed on its own, Defendants do not dispute Plaintiffs’ construction of that term (i.e., “Introducing under pressure or by use of force”). Dkt. 88, Amended Joint Table of Terms Requiring Construction, pgs. 2-3.

Objection: Plaintiffs’ PFF ¶ 178 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the parties’ Amended Joint Table of Terms Requiring Construction—does not support the stated proposition. The Amended Joint Table does not discuss the term “injecting” as construed on its own. Rather, the record reflects that Defendants proposed that “the word ‘injecting’ should not be construed in isolation, but instead as it used in the patent claims.” D.I. # 88, Amended Joint Table of Terms Requiring Construction, at 2.

179. Claim 1 of the '692 Patent states: "A method of treating coal combustion flue gas containing mercury comprising: injecting a bromide compound that is a thermolabile molecular bromine precursor into said flue gas . . .". Dkt. 38-1, U.S. Patent No. 6,808,692, Claim 1.

Response: Undisputed that the '692 Patent contains the quoted statement
(without the emphasis on "injecting.")

180. Claim 19 of the '692 Patent states: "A method of treating flue gas . . . said method comprising the steps of: (a) injecting into the flue gas a bromide compound that is a thermolabile molecular bromine precursor . . .". Dkt. 38-1, U.S. Patent No. 6,808,692, Claim 19.

Response: Undisputed that the '692 Patent contains the quoted statement
(without the emphasis on "injecting.")

181. Plaintiffs' proposed construction is that "injecting" be construed to mean "introducing under pressure or by use of force." Dkt. 88, Amended Joint Table of Terms Requiring Construction, pgs. 2-3.

Response: Undisputed.

182. In her Second Expert Report, Dr. Wilcox states the following: "Dr. Fry proposes that rather than construe the phrase used in the claims, the Court instead define the word 'injecting' to mean 'introducing under pressure or by use of force.' First Fry Report at ¶ 116. This definition does not come from the intrinsic record. In my opinion, I do not think it is necessary to construe the word 'injecting' by itself; a POSA would understand the plain meaning of the word in context. Furthermore, the exact scope of the definition proposed by Dr. Fry is unclear. His construction would not help a POSA, or the Court, understand the scope of the claim. He simply proposes replacing one word with some others. Indeed, the proposed definition would do little to help delineate the metes and bounds of the claim." Dkt. 82, Second Expert Report of Dr. Jennifer Wilcox, ¶ 52.

Response: Undisputed.

183. In the Amended Joint Table of Terms Requiring Construction, Defendants state: "The word 'injecting' should not be construed in isolation, but rather as it is used in the patent claims, where it occurs in the claim terms 'injecting . . . into said flue gas' and 'injecting into the flue gas.' Those terms should be given the construction: 'injecting into the flue gas stream after the boiler and before the stack outlet.'" Dkt. 88, Amended Joint Table of Terms Requiring Construction, pg. 2.

Response: Undisputed.

184. Dr. Fry's Second Report provides support for Plaintiffs' construction of "injecting." Dkt. 79, Second Expert Report of Dr. Andrew Fry, ¶¶ 127-141.

Objection: Pl. PFF ¶ 184 violates the Court's Standing Order on Motions for

Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs' argument.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs' cited evidence—the Second Fry Report at ¶¶ 127–141—does not support the stated proposition. The cited paragraphs do not provide support for Plaintiffs' construction of “injecting.” Rather, the record reflects that, in those paragraphs, Fry expresses an “opinion” that “at the time of the invention of the '692 Patent, one of ordinary skill in the art would have understood the term ‘injecting’ to mean ‘introducing under pressure or by use of force.’” D.I. # 79, Second Fry Report ¶ 128.

185. Plaintiffs' proposed construction of “flue gas” is “[t]he gas produced during the combustion of coal.” Dkt. 88, Amended Joint Table of Terms Requiring Construction, pg. 2.

Response: Undisputed.

186. Defendants' proposed construction of “flue gas” is that “[t]he term ‘flue gas’ should not be construed in isolation, but rather as it is used in the patent claims, where it occurs in the claim terms ‘coal combustion flue gas’; ‘said flue gas’; ‘the flue gas’; and ‘flue gas . . . wherein the flue gas is produced during the combustion of coal.’ Those terms should be given the construction: ‘The gases in the region from above the combustion zone through the stack outlet that result from the substantially – complete combustion of coal.’” Dkt. 88, Amended Joint Table of Terms Requiring Construction, pg. 2.

Response: Undisputed.

187. Defendants' proposed construction of “injecting . . . into said flue gas”; “injecting into the flue gas” is “[i]njecting into the flue gas stream after the boiler and before the stack outlet.” Dkt. 88, Amended Joint Table of Terms Requiring Construction, pgs. 2-3.

Response: Undisputed.

188. Both of the two independent asserted claims, claim 1 and claim 19, are from the reexamination certificate, and not part of the original issued claims of the '692 Patent. Dkt. 38-1, U.S. Patent No. 6,808,692, Inter Partes Reexamination Certificate, Claims 1 and 19.

Response: Undisputed.

189. Claim 1 is an asserted independent claim. Dkt. 38-1, U.S. Patent No. 6,808,692, Inter Partes Reexamination Certificate, Claim 1.

Response: Undisputed.

190. Claim 19 is an asserted independent claim. Dkt. 38-1, U.S. Patent No. 6,808,692, Inter Partes Reexamination Certificate, Claim 19.

Response: Undisputed.

191. Dr. Fry stated in his Third Expert Report: “As an initial matter, I agree with Dr. Wilcox’s opinion that ‘the terms used in claims 1 and 19 would be construed the same way.’ Wilcox Second Report at ¶ 14. As discussed in my Opening Infringement Reports, it is my opinion that both of these claims (along with claim 21) support my proposed construction of ‘flue gas.’ Opening Infringement Report at ¶¶ 89-92.” Dkt. 80, Third Expert Report of Dr. Andrew Fry, ¶ 14.

Response: Undisputed.

192. Dr. Wilcox stated in her Second Expert Report: “Independent claim 1 of the ’692 Patent is directed to a method of treating ‘coal combustion flue gas,’ and thereafter refers to ‘said flue gas,’ which I understand refers back to the ‘coal combustion flue gas’ referenced in the first lines of that claim. Likewise, independent claim 19 of the ’692 Patent is directed to a method of treating ‘flue gas . . . produced during the combustion of coal.’ In my opinion, the terms used in claims 1 and 19 would be construed in the same way. I see no reason—either in my experience and knowledge, or in the material that I have reviewed—that a POSA would distinguish between the meaning of the terms used in claim 1 and those used in claim 19. Dr. Fry does not suggest any reason to give them different constructions.” Dkt. 82, Second Expert Report of Dr. Jennifer Wilcox, ¶ 14.

Response: Undisputed.

193. Dr. Wilcox stated in her Second Report: “At the core of Dr. Fry’s Opening Reports is his central opinion that introducing pulverized coal into the boiler, where such coal has first been treated with MerSorb and S-Sorb before pulverization (i.e., where such coal has been treated according to the Chem-Mod Process), constitutes ‘injecting . . . [calcium bromide] into the flue gas’ according to the claims of the ’692 Patent. I disagree with that opinion, as it is inconsistent with the proper understanding of the term ‘flue gas,’ and the term ‘injecting . . . into the flue gas,’ as those terms are used in the ’692 Patent claims. Accordingly, I begin my analysis with a discussion of the proper construction of those claim terms and why, in my view, Dr. Fry’s analysis is incorrect.” Dkt. 82, Second Expert Report of Dr. Jennifer Wilcox, ¶ 13.

Response: Undisputed, to the extent “Chem-Mod Process” has the meaning understood in Pl. PFF ¶ 19.

194. Dr. Fry stated in his Third Expert Report: “Dr. Wilcox attempts to support this opinion, in part, by stating that my proposed construction ‘ignores the language of the claim.’

Wilcox Second Report at ¶ 20. Dr. Wilcox's assertion that I ignored the claim language is wrong. In my Opening Infringement Reports (and as discussed above), I specifically identify the language of the claims as support for my proposed construction of 'flue gas.' *See, e.g.*, Opening Infringement Report at ¶¶ 89–92. Moreover, Dr. Wilcox appears to agree with my position concerning the claim language in her own report stating that: 'Independent claim 1 of the '692 Patent is directed to a method of treating "coal combustion flue gas," and thereafter refers to "said flue gas," which I understand refers back to the "coal combustion flue gas" referenced in the first lines of that claim.' Wilcox Second Report at ¶ 13." Dkt. 80, Third Expert Report of Dr. Andrew Fry, ¶ 23.

Response: Undisputed.

195. Dr. Wilcox stated in her Second Report: "Not everyone who works in or with coal-burning power plants is always precise in his or her use of the term 'flue gas.' Some use it more loosely, and when doing so often specify their intent to use the term in a very broad manner. However, I believe that the plain and ordinary meaning of the term 'coal combustion flue gas,' especially as used in the '692 Patent, is as I have described, and this is particularly the case because the patent claims reference 'coal combustion flue gas' rather than just 'coal combustion gas' or 'gases from coal combustion.' Ignoring the descriptor 'flue' collapses any distinction between all of the coal combustion gases and the 'coal combustion flue gas.' The word 'flue' should not be ignored." Dkt. 82, Second Expert Report of Dr. Jennifer Wilcox, ¶ 18.

Response: Undisputed.

196. Claim 20 of the '692 Patent states:

20. A method of treating flue gas that contains elemental mercury, wherein the flue gas is produced during the combustion of coal, said method comprising the steps of:

- (a) injecting into the flue gas a thermolabile molecular halogen precursor, whereby the elemental mercury is oxidized to form mercuric halide; and
- (b) providing solid alkaline particles in said flue gas upstream of a particulate collection device, whereby at least a portion of the mercuric halide produced at Step (a) is adsorbed by the solid alkaline particles; wherein the thermolabile molecular halogen precursor of Step (a) is magnesium bromide.

Dkt. 38-1, U.S. Patent No. 6,808,692, Inter Partes Reexamination Certificate, Claim 20.

Response: Undisputed that the '692 Patent contains the text of Claim 20.

197. Claim 21 of the '692 Patent states:

21. A method of treating flue gas that contains elemental mercury, wherein the flue gas is produced during the combustion of coal, said method comprising the steps of:

- (a) injecting into the flue gas a thermolabile halogen precursor, whereby the elemental mercury is oxidized to form mercuric chloride; and
- (b) providing solid alkaline particles in said flue gas upstream of a particulate collection device, whereby at least a portion of the mercuric chloride produced at Step (a) is adsorbed by the solid alkaline particles; wherein the thermolabile molecular halogen precursor of Step (a) is a hypochlorite; wherein the hypochlorite is calcium hypochlorite; and wherein the calcium hypochlorite is in an aqueous solution containing calcium chloride.

Dkt. 38-1, U.S. Patent No. 6,808,692, Inter Partes Reexamination Certificate, Claim 1.

Response: Undisputed that the '692 Patent contains the text of Claim 21.

198. Dr. Wilcox testified as follows: "When coal is combusted, it reacts with oxygen. Oxygen dissociates on the surface, and the components of flue gas start to form. They are quickly replenished with fuel. It's a continuous process combustion. You cannot deny that carbon monoxide, carbon dioxide and water vapor starts to form upon combustion. But nobody would point to the area that's dominant in fuel and call it flue gas. It doesn't mean it's not borne there." Dkt. 74, Deposition of Dr. Jennifer Wilcox, pg. 138:4-13.

Objection: Pl. PFF ¶ 198 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites an expert's opinion, and Secs. I.B.4 and I.C.1, because the citation does not correctly identify with specificity where in the record the evidence is located.

Response: Undisputed. To clarify, Dr. Wilcox testified that "water vapors start to form upon combustion." D.I. # 74, Wilcox Dep. 138:10-11. That Wilcox so answered does not make the testimony admissible for all purposes, however.

199. Dr. Wilcox testified as follows: "And I would say just like the patent that you showed me, they would say that that – and just like all the definitions that Andrew Fry gave in his expert report and responses, yes, that is where flue gasses are borne in the furnace because that is what oxidation of coal means." Dkt. 74, Deposition of Dr. Jennifer Wilcox, pg. 144:9-15.

Objection: Pl. PFF ¶ 199 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites an expert's opinion.

Response: Disputed in part. The testimony is taken out of context and incomplete. The record shows that at 144:10-15, Wilcox testified as follows:

A. And I would say just like the patent that you showed me, they would say that that -- and just like all the definitions that Andrew Fry gave in his expert report and responses, yes, that is where flue gasses are borne in the furnace because that is what oxidation of coal means. But it doesn't mean that that is the same as flue gas. And so it's not easy to say yes or no because that would imply that that's flue gas and it's not. It's where it's borne, and it quickly leaves that region, and that region is fuel-rich and it's not flue gas.

D.I. # 74, Wilcox Dep. 144:10–15. That Dr. Wilcox so answered does not make her testimony admissible for all purposes, however.

200. Dr. Wilcox testified as follows: “It’s just where the flue gas is borne.” Dkt. 74, Deposition of Dr. Jennifer Wilcox, pg. 150:3.

Objection: Pl. PFF ¶ 200 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites an expert’s opinion.

Response: Disputed as unsupported. Pl. PFF ¶ 200 includes testimony that is taken out of context and incomplete. Read in the context of Wilcox’s testimony surrounding the quoted text in Pl. PFF ¶ 200, Plaintiffs’ cited evidence—the deposition transcript of Wilcox at 150:3—does not support the stated proposition that Wilcox testified that “[i]t’s just where the flue gas is borne.” Rather, the record shows that Wilcox testified as follows:

Q. List for me all of the people you know, if any, that have referred at least on an occasion to some gas in some boilers as flue gas.

A. . . . Andrew Fry would say that some of the gas is flue gas, these references say that some of the gas is flue gas. Doesn’t mean that that is injection into the flue gas. That’s fuel-rich. It’s coal. It’s fuel.

MR. FARNEY: Can you read my question back, and I’d like you to listen to the beginning of the question for what I was asking for and then see if you can answer it.

(Pending question read.)

A. So phrased in that way, Andrew Fry in his reports and some of these references refer to the evolution of flue gas which is the byproducts of combustion, and that’s exactly what I meant when I talked about this here, too. I mean, I read Andrew Fry’s statements, and I don’t disagree with a lot of the definitions he provides, but it doesn’t mean you point to that region and call it flue gas. It’s very different. *It’s just where the flue gas is*

borne. So, yes, in a brief moment there are some gases that are produced in that zone that are flue gases, but you wouldn't refer to the whole region as flue gas.

D.I. # 74, Wilcox Dep. 148:24–150:7 (emphasis added). That Wilcox so answered does not make her testimony admissible for all purposes, however.

201. Dr. Wilcox testified as follows: “So you’re oxidizing fuel in air, so you’re going to have oxygen, nitrogen, and then you’ll start to generate some of the flue gases, as I said.” Dkt. 74, Deposition of Dr. Jennifer Wilcox, pg. 315:7-10.

Objection: Pl. PFF ¶ 201 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites an expert’s opinion.

Response: Undisputed that Wilcox answered as quoted above. That Wilcox so answered does not make the testimony admissible for all purposes, however.

202. In the Alstom Reexamination proceedings, the PTAB held:

We are not persuaded that the term “thermolabile” or “flue gas” limits the temperature range as suggested by Requester. Neither the claims nor the specification of the ’692 patent expressly state any temperature limits for the method recited in claim 22. Rather, the ’692 patent states that the method is for “treating coal combustion flue gas, preferably that obtained after the ‘superheater’ section of a coal-fired plant, for example the economizer inlet.” ’692 patent, col. 3, 1. 66–col. 4, 1. 5. Even so, “after the ‘superheater’ section” is only a preferred location for the treatment to take place, and thus does not limit the claims, which are silent as to either temperature or location of treatment of the flue gas.

Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Decision on Appeal, at pg. 6.

Response: Undisputed that the cited PTAB decision contains the quoted text.

203. In the reexamination proceedings on the ’692 Patent, the Requestor, Alstom, also argued “flue gas” did not exist inside the combustion zone. Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Third-Party Requester Alstom Power Inc.’s Appellant Brief, at pgs. 6-9.

Objection: Pl. PFF ¶ 203 is vague and ambiguous. The “also” reference is

vague; Plaintiffs have not defined “flue gas” or “the combustion zone,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported by admissible evidence. To the extent that Alstom’s brief is offered to establish the truth of what Alstom asserted in the reexamination proceedings, the evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

204. In her Second Expert Report, Dr. Wilcox stated the following: “*Specification:* Second, although there is no explicit definition of the term ‘flue gas’ in the patent specification, the specification does contain significant material to assist a POSA in understanding the meaning of the term as it is used in the claims. For example, a POSA would be struck by the facts that not one of the three examples describes actual experiments illustrating the claimed method, and not one describes flue gas as present in the combustion zone of the boiler. The only suggestions for the location of the flue gas are ‘after the superheater section’ or ‘in the economizer/ESP suggestion of the combustor,’ which are both well downstream of the combustion zone. ’692 Patent at 3:66-4:3; 7:60-65.” Dkt. 82, Second Expert Report of Dr. Jennifer Wilcox, ¶ 21.

Response: Undisputed. To clarify, the original document does not cite docket entry numbers.

205. The specification of the ’692 Patent states that: “[a]ccording to the invention, there is provided a method of treating coal combustion flue gas, preferably that obtained after the ‘superheater’ section of a coal-fired plant.” Dkt. 38-1, U.S. Patent No. 6,808,692, at 3:66-4:2.

Response: Undisputed that the ’692 Patent contains the quoted statement, but that does not make the statement admissible for all purposes.

206. In column 7 of the ’692 Patent, the specification states in part: “It is certain that injection of a molecular halogen source, such as calcium hypochlorite/calcium chloride aerosol or chlorine gas, at an appropriate dose, in the economizer/ESP section of this combustor, in similar fashion to Example 1, would effect substantial conversion of elemental mercury to easily adsorbable mercuric halide such as mercuric chloride.” Dkt. 38-1, U.S. Patent No. 6,808,692, at 7:60-65.

Response: Undisputed that the ’692 Patent contains the quoted statement, but

that does not make the statement admissible for all purposes.

207. The claim terms “a bromide compound that is a thermolabile molecular bromine precursor”; “the thermolabile molecular bromine precursor” for purposes of the asserted claims of the ’692 Patent, have been agreed by the parties to mean: “A bromide compound that decomposes at flue gas temperatures typical of coal-fired power plants which will lead to and result in the formation of molecular bromine (Br₂).” Dkt. 88, Amended Joint Table of Terms Requiring Construction, pg. 3.

Response: Undisputed.

208. The chemical notation form of expressing mercuric bromide is “HgBr₂.” Dkt. 38-16, Plaintiffs’ Second Amended Complaint, Ex. L, Evan Granite Article “Sorbents for Mercury Removal from Flue Gas.”

Response: Undisputed even though unsupported by the cited reference.

209. In the patent, the ’692 Patent Specification provides:

The conversion of mercury to its mercuric halide forms is thermodynamically favored at temperatures typical of coal combustor flue gas, especially coal combustor flue gas between economizer inlets and [filtration systems]...

[Table 2 omitted]

.... Clearly from table 2, it can be seen that the formation of mercuric chloride from elemental mercury and molecular chlorine is particularly favored between 127 and 527°C typical of post superheater coal combustor flue gas zones.

Dkt. 38-1, U.S. Patent No. 6,808,692, at 4:66–5:25.

Response: Undisputed that the ’692 Patent contains the quoted statement (but that the patent includes “Table 2”), but that does not make the statement admissible for all purposes.

210. In his Third Expert Report, Dr. Fry stated that: “[t]here are a number of reactions that take place in ‘flue gas’ other than mercury oxidation, and there is no reason that a POSA would tie the definition of ‘flue gas’ to the thermodynamics of one particular reaction without a clear intention in the patent to do so.” Dkt. 80, Third Expert Report of Dr. Andrew Fry, ¶ 30.

Response: Undisputed.

211. In her Second Expert Report, Dr. Wilcox stated that: “Table 2 shows that the free energies of formation of the indicated mercury halide compounds become less negative as the temperature increases. Extrapolating the data in Table 2, the free energy of formation of mercuric iodide becomes positive (and thus not thermodynamically favored to proceed) above about 700

°C (1292 °F), becomes positive for mercuric bromide above about 1000 °C (1832 °F) (and thus not thermodynamically favored to proceed), and becomes positive for mercuric chloride above about 1100 °C (2012 °F) (and thus not thermodynamically favored to proceed). *See, e.g.*, NALC00468208 (listing free energies of formation for mercuric halides). Thus, the statement that ‘the conversion of mercury to its mercuric halide forms is thermodynamically favored’ is true for all three identified halides only up to about 700 °C (1292 °F), and is not true for any of the identified halides above 1100 °C (2012 °F). Accordingly, a POSA would understand the inventor to be teaching that ‘flue gas’ has typical temperatures below those ranges—and, as explained below, that ‘injecting . . . into said flue gas’ requires injecting into gas having a temperature below that range.” Dkt. 82, Second Expert Report of Dr. Jennifer Wilcox, ¶ 24.

Response: Undisputed.

212. Dr. Wilcox has testified that under Defendants’ construction of “flue gas” (i.e., “the gases in the region from above the combustion zone through the stack outlet that result from the substantially-complete combustion of coal”) flue gas exists in the “upper furnace,” which she indicates has temperatures as high as 1370°C. Dkt. 74, Deposition of Dr. Jennifer Wilcox, pgs. 122, 126, 134; Dkt. 81, First Expert Report of Dr. Jennifer Wilcox, ¶ 29.

Objection: Pl. PFF ¶ 212 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not correctly identify with specificity where in the record the evidence is located, and Sec. I.B.6, because it simply recites an expert’s opinion.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the First Wilcox Report at ¶ 29—does not support the stated proposition. The cited paragraph does not state that “under Defendants’ construction of ‘flue gas’ . . . flue gas exists in the ‘upper furnace,’” with temperatures as high as 1370°C. D.I. # 81, First Wilcox Report ¶ 29.

213. During the ’692 Patent Reexamination, the Requestor argued, among other things, “that the term ‘flue gas’ is limited to a temperature range of 127°C and 527°C.” Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Decision on Appeal, at pgs. 4-5.

Objection: Pl. PFF ¶ 213 is vague and ambiguous. Plaintiffs have not defined “flue gas” and it is not clear how the term is being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. It is not clear how

Plaintiffs are using the term in this factual assertion. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2.

Response: Undisputed that the cited PTAB decision contains the quoted text.

214. During the '692 Patent Reexamination, the Requestor argued “that the examples of the '692 patent all apply at temperatures of 500 °C or below” and pointed “to Table 2 of the '692 patent as evidence that the negative free energy of formation of mercuric halide decreases significantly as the temperature increases from 127°C to 527°C.” Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Decision on Appeal, at pgs. 4-5.

Response: Undisputed that the cited PTAB decision contains the quoted text.

215. In the PTAB decision on reexamination, the PTAB stated that: “Neither the claims nor the Specification of the '692 patent expressly state any temperature limits for the method recited in [the claims].” The reference to “after the ‘superheater’ section is only a preferred location for the treatment to take place, and thus does not limit the claims, which are silent as to either temperature or location of treatment of the flue gas.” Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Decision on Appeal, at pgs. 6 and 8.

Objection: Pl. PFF ¶ 215 is vague and ambiguous. Plaintiffs have not defined “the flue gas” and it is not clear how the term is being used in this asserted fact. Also, the term “the flue gas” is hotly contested in this litigation. It is not clear how Plaintiffs are using the term in this factual assertion. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. Finally, Pl. PFF ¶ 215 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Undisputed that the cited PTAB decision contains the quoted text.

216. U.S. Patent No. 6,372,187 (“Madden”) was cited in prosecution. Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Decision on Appeal, at pg. 6.

Response: Undisputed.

217. U.S. Patent No. 6,372,187 (“Madden”) is directed at an invention for removing mercury from the flue gas of coal-fired power plants. Dkt. 38-12, U.S. Patent No. 6,372,187.

Objection: Pl. PFF ¶ 217 is vague and ambiguous. Plaintiffs have not defined “the flue gas,” and it is not clear how the term is being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—U.S. Patent 6,372,187 (“Madden”)—does not support the stated proposition. Madden does not state that it is directed at an invention for removing mercury from “the flue gas” “of coal-fired power plants.” Rather, Madden states that it is directed at an invention for “removing mercury from a flue gas generated in a combustion system.” D.I. # 38-12, U.S. Patent No. 6,372,187, at Claim 20. Additionally, Pl. PFF ¶ 217 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite Madden, which is not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent Madden is offered to prove that it is directed at an invention for removing mercury from the flue gas of coal-fired power plants, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

218. U.S. Patent No. 6,372,187 (“Madden”) states: “[s]mall amounts of alkaline sorbents are thus injected into the flue gas stream at a relatively low rate.” Dkt. 38-12, U.S. Patent No. 6,372,187, at 2:43-44.

Objection: Pl. PFF ¶ 218 is vague and ambiguous. Plaintiffs have not defined “the flue gas stream” and it is not clear how the term is being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88,

Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Undisputed that Madden contains the quoted statement, but that does not make the statement admissible for all purposes.

219. U.S. Patent No. 6,372,187 (“Madden”) states “the injection of any alkaline sorbent 14 into a flue gas 42, 44, 46 stream anywhere from the boiler 24 to the exit stack 36.” Dkt. 38-12, U.S. Patent No. 6,372,187, at 3:56-58.

Objection: Pl. PFF ¶ 219 is vague and ambiguous. Plaintiffs have not defined “injection,” “sorbent 14,” “flue gas 42, 44, 46 stream,” “the boiler 24,” or “the exit stack 16,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “injection” and “flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—Madden—does not support the stated proposition. Rather, Madden states that “Alkaline sorbent injection for mercury control includes the injection of any alkaline sorbent 14 into a flue gas 42, 44, 46 stream anywhere from the boiler 24 to the exit stack 36.” D.I. # 38-12, U.S. Patent No. 6,372,187, at 3:56–58. Furthermore, while Madden contains the quoted statement, that does not make the statement admissible for all purposes.

220. U.S. Patent No. 6,372,187 (“Madden”) states that “flue gases 42, containing contaminants such as mercury, are generated in the boiler 24 furnace and rise through upper furnace region 28.” Dkt. 38-12, U.S. Patent No. 6,372,187, at 3:21-23.

Objection: Pl. PFF ¶ 220 is vague and ambiguous. Plaintiffs have not defined “flue gases,” “the boiler [] furnace,” or “[the] upper furnace region,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas”

is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction, at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs' cited evidence—Madden—does not support the stated general proposition. Rather, Madden states that “[i]n the system **10** shown, hot flue gases **42**, containing contaminants such as mercury, are generated in the boiler **24** furnace and rise through upper furnace region **28**.” D.I. # 38-12, U.S. Patent No. 6,372,187, at 3:21–23. Additionally, Pl. PFF ¶ 220 includes evidence that is taken out of context and incomplete. Furthermore, while the Madden contains the quoted statement, that does not make the statement admissible for all purposes.

221. U.S. Patent No. 6,372,187 (“Madden”) includes the following as Figure 2:

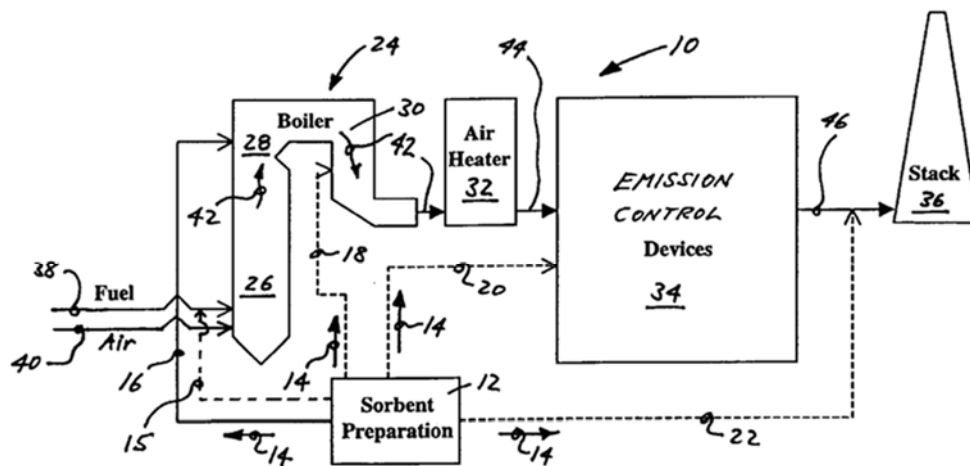


FIG. 2

Dkt. 38-12, U.S. Patent No. 6,372,187, at Figure 2.

Response: Undisputed that Madden contains Figure 2, but that does not make the figure admissible for all purposes.

222. With reference to Figure 2, Madden '187 describes “a power plant system 10 [that] includes a boiler 24 having a lower furnace region 26, an upper furnace region 28, a convection pass 30, an air heater 32, emissions control devices 34, and a stack 36.” Dkt. 38-12, U.S. Patent No. 6,372,187, at 3:14-17.

Objection: Pl. PFF ¶ 222 misstates the evidence to the extent that the text in Pl. PFF is altered from the original document.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—Madden at 3:14–17—does not support the stated proposition. Madden does not state that Figure 2 relates to “a power plant system that includes” the components discussed. Rather, Madden states that Figure 2 refers to “[t]he power plant system 10,” which is defined as “a power plant installation or system 10 having an alkaline sorbent preparation means for preparing an alkaline sorbent.” D.I. # 38–12, U.S. Patent No. 6,372,187, at 3:10:12. Furthermore, while Madden contains the quoted statement, that does not make the statement admissible for all purposes.

223. U.S. Patent No. 6,372,187 (“Madden”) states that “hot flue gases 42, containing contaminants such as mercury, are generated in the boiler 24 furnace, and rise through upper furnace region 28.” Dkt. 38-12, U.S. Patent No. 6,372,187, at 3:20-23.

Objection: Pl. PFF ¶ 223 is vague and ambiguous. Plaintiffs have not defined “hot flue gases,” “the boiler [] furnace,” or “[the] upper furnace region,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Undisputed that Madden contains the quoted statement, but that does not make the statement admissible for all purposes.

224. The additive (“sorbent 14”) Madden wishes to inject into the flue gas stream is generated in the “sorbent preparation means 12.” Dkt. 38-12, U.S. Patent No. 6,372,187, at 3:11-14.

Objection: Pl. PFF ¶ 224 is vague and ambiguous. Plaintiffs have not defined “inject” or “the flue gas stream,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “inject” and “flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Undisputed that Madden contains the quoted statement, but that does not make the statement admissible for all purposes.

225. Madden states that the sorbent 14 “may be delivered into the flue gases 42, 44, 46 [numbered at different places in the system] at one or more locations of the upper furnace region 28. . . or in with the fuel 38.” Dkt. 38-12, U.S. Patent No. 6,372,187, at 3:41-45.

Objection: Pl. PFF ¶ 225 is vague and ambiguous. Plaintiffs have not defined “the flue gases” or “the upper furnace region,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—Madden at 3:41–45—does not support the stated proposition. Madden does not state that “the sorbent 14 ‘may be delivered into the flue gases 42, 44, 46 [numbered at different places in the system] at one or more locations of the upper furnace region 28 . . . or in with the fuel 38.’” Rather, Madden states that “the sorbent 14” “may be delivered into the flue gases 42, 44, 46 [numbered at different places in the system] at one or more locations of the upper furnace region 28, *the convection pass 30, at the emissions control devices 34, prior to exiting the*

system 10 through the stack, or in with the fuel 38.” D.I. # 38-12, U.S. Patent No. 6,372,187 at 3:41–45 (emphasis added). Additionally, Pl. PFF ¶ 225 includes material that is taken out of context and incomplete. Furthermore, to the extent that Madden does contain the quoted statement that does not make the statement admissible for all purposes.

226. In his Third Expert Report, Dr. Fry states: “I disagree with Dr. Wilcox’s opinion that the Madden references (U.S. Patent Nos. 5,795,548 and 5,814,288) supports Defendants’ construction, rather than Plaintiffs’ construction. Wilcox Second Report at ¶ 44. These patents share a common specification, and in this report I will cite to the ’288 Patent. As Dr. Wilcox concedes, in the ’288 Patent, ‘arrow 32 is the flue gas’ in Figure 1. In my opinion, it would be clear to a POSA reviewing this diagram that ‘flue gas’ is produced from the combustion of coal (before ‘heading from the combustion zone’ as asserted by Dr. Wilcox). In particular, arrow 32 (the flue gas) starts in the combustion zone of the furnace before heading into the upper portion of the furnace. Moreover, the ’288 Patent makes clear that ‘[w]hile specific embodiments of the invention have been shown and described in detail to illustrate the application of the principles of the inventions, those skilled in the art will appreciate that changes or modifications may be made . . . without departing from such principles.’ 288 Patent at 9:11–22. In my opinion, a POSA would understand that another possible embodiment of the invention would allow for the injection of limestone into the furnace with the fuel through the burner in stream 30. For example, Figure 2 of the ’288 Patent shows stream 30 (which is the fossil fuel) is injected and intersects with stream 32 (which is flue gas). Accordingly, it is my opinion that the Madden references demonstrate that a ‘flue gas’ is the gas formed from the combustion of coal, and that a POSA would understand that at the time of the invention, an additive can be mixed with the coal prior to being injected into the furnace.” Dkt. 80, Third Expert Report of Dr. Andrew Fry, ¶ 42.

Response: Undisputed.

227. In his Third Expert Report, Dr. Fry states: “Although not discussed by Dr. Wilcox in this section of the Wilcox Second Report, U.S. Patent No. 6,372,187 to Madden et al. make clear that a POSA would have known at the time of the application that led to the ’692 Patent that ‘injecting . . . into the flue gas’ includes introducing the additive mixed with fuel into the flue gas in the combustion zone and introducing the additive into the flue gas downstream of the combustion zone. *See generally* Dkt. 35–12, ’187 Patent; *see also* Dkt. 72, Opening Infringement Report at ¶¶ 120 and 121. For example, Figure 2 of the ’187 Patent [] shows that sorbent (14) can be injected in the fuel (15) at the burner, in the upper furnace (16), in the convection pass/economizer (18), in (or between) the emission control devices (20), and before the stack (22).” Dkt. 80, Third Expert Report of Dr. Andrew Fry, ¶ 43.

Response: Undisputed. To clarify, the original document does not cite docket entry numbers.

228. In his Third Expert Report, Dr. Fry states: “The ’187 Patent further contains many statements that demonstrate that the additive could be mixed with fuel before being injected into the flue gas in the combustion zone” and cites six statements. Dkt. 80, Third Expert Report of Dr. Andrew Fry, ¶ 44.

Response: Undisputed.

229. Madden states clear that: “[t]he temperatures for injection of the sorbent [into the flue gas stream] range from those typical at the coal input to the boiler (3000° F.) and in the upper portion 28 of a furnace (2300° F.) to very low temperatures such as at the outlet of a wet scrubber (150° F.).” Dkt. 38-12, U.S. Patent No. 6,372,187, at 3:64–4:1.

Response: Undisputed that Madden contains the quoted statement, but that does not make the statement admissible for all purposes.

230. Madden states (with component numbers omitted for clarity) that: “Alkaline sorbent injection for mercury control includes the injection of any alkaline sorbent into a flue gas stream anywhere from the boiler [which includes the coal input at 3000 °F/1649 °C] to the exit of the stack.” Dkt. 38-12, U.S. Patent No. 6,372,187, at 3:55-59.

Objection: Pl. PFF ¶ 230 is vague and ambiguous. Plaintiffs’ omission of “component numbers” as they appear in the patent does not promote clarity and changes the meaning of the statement.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—Madden at 3:55–59—does not support the stated proposition that component numbers in the cited passage could be omitted for clarity. Rather, the quoted text contains component numbers in order to provide important information regarding the location of various components in the referenced figure. Moreover, the cited text does not support the proposition that “the boiler” “includes the coal input at 3000 °F/1649 °C.” D.I. # 38-12, U.S. Patent No. 6,372,187 at 3:55–59. Pl. PFF ¶ 225 includes material that is taken out of context and incomplete. Furthermore, to the extent that Madden does contain the quoted statement, that does not make the statement admissible for all purposes.

231. The PTAB during the ’692 Patent Reexamination stated: “We find this broader

interpretation of ‘flue gas’ [for the ’692 patent claims] to be reasonable because the prior art related to treating flue gas from coal combustion supports the finding that flue gas treatment materials may be injected in several locations between the boiler and the stack outlet.” Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Decision on Appeal, at pgs. 6-7.

Objection: Pl. PFF ¶ 231 is vague and ambiguous. Plaintiffs have not defined “the ’692 Patent claims,” and it is not clear how the term is being used in this asserted fact.

Response: Undisputed that the cited PTAB decision contains the quoted text.

232. Another reference considered in the prosecution and forming part of the intrinsic record is Granite, et al., “Sorbents for Mercury Removal from Flue Gas,” DOE (1998), which was cited in the ’692 Patent prosecution history. Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Decision on Appeal, at pg. 6.

Response: Undisputed.

233. The PTAB cited Granite at 3-4, to state that in the ’692 Patent, the claims “are silent as to either temperature or location of treatment of the flue gas.” Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Decision on Appeal, at pg. 6.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the PTAB’s Decision on Appeal in *Alstom Power Inc. v. Hazelmere Research Ltd* at 6—does not support the stated proposition. Rather, the cited text refers to Granite 3–4 for the proposition that “[t]he record provides persuasive evidence that it was known in the art at the time of the invention that ‘flue gas’ can be at temperatures much higher than 527°C.” D.I. # 38-10, Decision on Appeal (Dec. 17, 2013) 6.

234. The PTAB cited Granite as describing that the flue gas in the system described by Granite “exits the furnace” at a temperature of 1371°C. Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Decision on Appeal, at pg. 6.

Objection: Pl. PFF ¶ 234 is vague and ambiguous. Plaintiffs have not defined “flue gas,” and it is not clear how the term is being used in this asserted fact.

Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended

Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs' cited evidence—the PTAB's Decision on Appeal—does not support the stated proposition. The text “exits the furnace” does not appear anywhere in the decision.

235. Dr. Wilcox stated in her Third Expert Report: “The highest temperature in the combustion zone is typically ~ 1370 °C. As the combustion gases exit the boiler they proceed through the economizer, where they cool from approximately 650 °C down to 370 °C. The flue gas in the generalized plant shown in Figure 4 then passes through a typical series of emissions controls and heat recovery systems.” Dkt. 81, First Expert Report of Dr. Jennifer Wilcox, ¶ 43.

Objection: Pl. PFF ¶ 235 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites an expert's opinion.

Response: Disputed. Wilcox did not state the text quoted in Pl. PFF ¶ 235 in the Third Wilcox Report. Rather, the record shows that Wilcox stated the quoted text in the First Wilcox Report. D.I. # 81, First Wilcox Report ¶ 43.

236. The file history, including the reexamination proceedings, is 2,140 pages long. Dkt. 38, Plaintiffs' Second Amended Complaint, Ex. F (38-6 to 38-10).

Response: Undisputed.

237. In August 2009, Nalco brought suit against an infringer of the '692 Patent, Alstom Power, Inc. C. Klingman Declaration at ¶ 31 and Exhibit 30 (Complaint against Alstom, N.D.Ill. 1-09-cv-05195, August 24, 2009).

Objection: Pl. PFF ¶ 237 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I, because it uses legal characterization with a reference to “an infringer of the '692 Patent.”

Response: Disputed. Alstom Power, Inc. is not an infringer of the '692 Patent. Rather, Alstom Power, Inc. was an alleged infringer of the '692 Patent who was never found to infringe the '692 Patent. D.I. # 113, Def. PFF ¶¶ 491, 499 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 53, Complaint at 3, *Nalco*

Mobotec, Inc. v. Alstom Power, Inc., No. 1:09-cv-05195, 2009 WL 2860309 (N.D. Ill. 2009), D.I. # 1; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 57, Nalco–Alstom Settlement Agreement (Apr. 11, 2013); D.I. # 67, Meier Dep. 198:24–210:14).

238. On or about May 28, 2010, Alstom filed a request for reexamination of the patent. Dkt. 38-7, Plaintiffs’ Second Amended Complaint, Ex F, p. 15.

Response: Undisputed.

239. In the Reexamination, the inventor submitted amended claims, some of which referred to a “thermolabile molecular bromine precursor.” Dkt. 38-7, Plaintiffs’ Second Amended Complaint, Ex F, p. 15.

Response: Undisputed.

240. The example of a “thermolabile bromine precursor” expressly mentioned in the ’692 Patent specification was magnesium bromide. Dkt. 38-1, U.S. Patent No. 6,808,692, at 3:60-62 and table 1.

Objection: Pl. PFF ¶ 240 misstates the evidence to the extent that the text in the PFF omits the word “molecular.”

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the ’692 Patent at 3:60–62 and Table 1—does not support the stated proposition. Lines 3:60–62 of the ’692 Patent do not refer to a “thermolabile bromine precursor.” Moreover, Table 1 does not “expressly mention” that “the example of a ‘thermolabile bromine precursor’ mentioned is magnesium bromide.” Rather, the table lists magnesium bromide as one of three possible examples of a “thermolabile halogen precursor.” D.I. # 38-1, U.S. Patent No. 6,808,692 at 3:60-62 and Table 1.

241. Alstom argued in its Appellant Brief in the ’692 Patent Reexamination that “flue gas” was limited by a temperature range or location, namely the range of 127 to 527°C. Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Decision on Appeal, at pg. 5.

Objection: Pl. PFF ¶ 241 is vague and ambiguous. Plaintiffs have not defined “flue gas,” and it is not clear how the term is being used in this asserted fact.

Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the PTAB’s Decision on Appeal in *Alstom Power Inc. v. Hazelmere Research Ltd.* at 5—does not support the stated proposition. The cited text does not state that Alstom argued “that ‘flue gas’ was limited by a temperature range or location, namely the range of 127 to 527°C.” D.I. # 38-10, Decision on Appeal (Dec. 17, 2013) 4–5.

242. Alstom argued in the ’692 Patent Reexamination that magnesium bromide is thermolabile only at 650°C or hotter. Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Decision on Appeal, at pg. 10.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the PTAB’s Decision on Appeal in *Alstom Power Inc. v. Hazelmere Research Ltd.* at 10—does not support the stated proposition. The cited text does not state that Alstom argued that “magnesium bromide is thermolabile only at 650°C or hotter.” Rather, the text refers to the following statement in Alstom’s argument: “Under higher temperature (generally higher than 650°C (27)), HBR and HI will be converted to BR₂ and I₂.” D.I. # 38-10, Decision on Appeal (Dec. 17, 2013) 10.

243. In the ’692 Patent Reexamination, Klaus Oehr stated that neither the term “flue gas” or “thermolabile” have “an upper temperature limit.” Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Patent Owner’s Brief, at pgs. 6-7.

Objection: Pl. PFF ¶ 243 is vague and ambiguous. Plaintiffs have not defined “flue gas,” and it is not clear how the term is being used in this asserted fact.

Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended

Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs have not offered competent testimony to support the stated proposition.

Additionally, Pl. PFF ¶ 243 mischaracterizes the statement as being made by Oehr. The statement was actually made by Hazelmere Research Ltd. Hazelmere did not state in the '692 Patent Reexamination that neither the term “flue gas” nor “thermolabile” have an “upper temperature limit.” Rather, Hazelmere stated that Alstom’s argument that “thermolabile” and “flue gas” have an upper temperature limit should be dismissed. D.I. # 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Patent Owner’s Brief at 7. Further, Pl. PFF ¶ 243 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Patent Owner’s Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.*, which is not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Patent Owner’s Brief is offered to prove any fact other than it contains the quoted text, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

244. Klaus Oehr in the '692 Patent Reexamination stated that: “Neither the Oehr Patent specification (“Specification”) nor the Oehr Patent file history (“File History”) defines ‘flue gas’ and ‘thermolabile’ to mean a temperature range.” Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Patent Owner’s Brief, at pg. 6.

Objection: Pl. PFF ¶ 244 is vague and ambiguous. Plaintiffs have not defined

“flue gas,” and it is not clear how the term is being used in this asserted fact.

Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported by admissible evidence. Further, Pl. PFF ¶ 244 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Patent Owner’s Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.*, which is not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Patent Owner’s Brief is offered to prove any fact other than it contains the quoted text, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

245. Klaus Oehr in the ’692 Patent Reexamination stated: “[t]he Specification and the File History make it clear that ‘thermolabile’ is an adjective describing a compound or combination of compounds that form molecular halogen at flue gas temperatures typical of coal-fired power plants with no set limitation on the temperature at which such halogens are formed.” Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Patent Owner’s Brief, at pg. 6.

Objection: Pl. PFF ¶ 245 is vague and ambiguous. Plaintiffs have not defined “flue gas temperatures typical of coal-fired power plants,” and it is not clear how the term is being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Pl. PFF ¶ 245 mischaracterizes the statement as being made by Oehr. The statement was actually made by Hazelmere Research Ltd. Further, Pl. PFF ¶ 245 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Patent Owner’s Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.*, which is not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Patent Owner’s Brief is offered to prove any fact other than it contains the quoted text, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

246. Alstom, to support its contention that Oehr should be limited to the “127-527°C” range supposedly stated in the specification (which, as explained above, is itself a flawed premise), argued that the term “flue gas” had no set meaning in the art. *See, e.g.,* Dkt. 38-9, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Appellant’s Brief, at pg. 16.

Objection: Pl. PFF ¶ 246 is vague and ambiguous. Plaintiffs have not defined “flue gas,” and it is not clear how the term is being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 246 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported. Plaintiffs’ cited text—Alstom’s Appellant Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.* at 16—does not

support the stated proposition. The cited text does not state that the term “flue gas” “had no set meaning in the art.” D.I. # 38-9, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Appellant’s Brief, at 16. Further, Pl. PFF ¶ 246 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Appellant’s Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.*, which is not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Appellant’s Brief is offered to prove that Alstom argued that the term “flue gas” had no set meaning in the art, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

247. In the ’692 Patent Reexamination, Alstom cited Madden, and contended that reference limited “flue gas” to only the temperature in the “upper furnace region” (which Alstom contended was 970°C). *See, e.g.,* Dkt. 38-9, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Appellant’s Brief, at pg. 9.

Objection: Pl. PFF ¶ 247 is vague and ambiguous. Plaintiffs have not defined “flue gas” or “the ‘upper furnace region’,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 247 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’

cited evidence—Alstom’s Appellant Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.* at 9—does not support the stated proposition. Alstom did not state in its Appellant Brief at 9 that Madden “limited ‘flue gas’ to only the temperature in the ‘upper furnace region.’” Rather, the record shows that Alstom stated that “Madden describes flue gas as including the boiler portion of a combustion system,” and cited text from Madden reading, “it is known to inject limestone in dry powder form into the flue gases in the upper furnace cavity of a boiler for the purposes of capturing SO₂ from the flue gases.” D.I. # 38-9, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Appellant’s Brief at 9 (citing D.I. # 38-12, U.S. Patent No. 6,372,187, at 2:54–56). Further, Pl. PFF ¶ 247 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Appellant’s Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.*, which is not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Appellant’s Brief is offered to prove that Alstom cited Madden, and contended that reference limited “flue gas” to only the temperature in the “upper furnace region”, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

248. In the ’692 Patent Reexamination, Alstom cited Mendelsohn, and contended that by comparison, it described “flue gas” as being much further downstream at 400°C. *See, e.g.*, Dkt. 38-9, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Appellant’s Brief, at pg. 9.

Objection: Pl. PFF ¶ 248 is vague and ambiguous. Plaintiffs have not defined

“flue gas,” and it is not clear how the term is being used in this asserted fact.

Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed. Alstom did not contend that Mendelsohn “described ‘flue gas’ as being much further downstream at 400°C.” Rather, Alstom contended that “Mendelsohn, on the other hand, describes flue gas as the portion of the combustion system located well after the furnace at the much lower temperature range of 400°C to ambient air.” D.I. # 38-9, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Appellant’s Brief at 9. Further, Pl. PFF ¶ 248 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Appellant’s Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.*, which is not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Appellant’s Brief is offered to prove that Alstom cited Mendelsohn, and contended that by comparison, it described “flue gas” as being much further downstream at 400°C, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

249. In the ’692 Patent Reexamination, Alstom cited Madden, and noted that “Madden describes flue gas as including the boiler portion of a combustion system” which “can have a temperature much higher than 970°C. *See, e.g.*, Dkt. 38-9, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Appellant’s Brief, at pg. 9.

Objection: Pl. PFF ¶ 249 is vague and ambiguous. Plaintiffs have not defined

“flue gas” or “the boiler portion of a combustion system,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 249 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Appellant’s Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.*, which is not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Appellant’s Brief is offered to prove that Alstom cited Madden, and noted that “Madden describes flue gas as including the boiler portion of a combustion system” which “can have a temperature much higher than 970°C,” this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

250. In the ’692 Patent Reexamination, Alstom cited Madden, and quoted a portion of Madden discussing injection into “the flue gases in the upper furnace region.” *See, e.g.*, Dkt. 38-9, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Appellant’s Brief, at pg. 9.

Objection: Pl. PFF ¶ 250 is vague and ambiguous. Plaintiffs have not defined “injection” or “the flue gases in the upper furnace region,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual

assertion.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—Alstom’s Appellant Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.* at 9—does not support the stated proposition. The referenced text does not quote a portion of Madden discussing injection into “the flue gases in the upper furnace region.” Rather, the text cites the following text from Madden: “It is known to inject limestone in dry powder form into the flue gases in the upper furnace cavity of a boiler for the purposes of capturing SO₂ from the flue gases.” D.I. # 38-9, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Appellant’s Brief at 9 (citing D.I. # 38-12, U.S. Patent No. 6,372,187, at 2:54–56 (emphasis added)). Further, Pl. PFF ¶ 250 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Appellant’s Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.*, which is not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Appellant’s Brief is offered to prove that Alstom cited Madden, and quoted a portion of Madden discussing injection into “the flue gases in the upper furnace region,” this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

251. In the ’692 Patent Reexamination, Alstom cited Mendelsohn, and stated that Mendelsohn: “describe[d] flue gas as that portion of the combustion system located well after the furnace at the much lower temperature range of 400°C to ambient air.” See, e.g., Dkt. 38-9, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Appellant’s Brief, at pg. 9.

Objection: Pl. PFF ¶ 251 is vague and ambiguous. Plaintiffs have not defined

“flue gas,” and it is not clear how the term is being used in this asserted fact.

Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 251 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Appellant’s Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.*, which is not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Appellant’s Brief is offered to prove that Alstom cited Mendelsohn, and stated that Mendelsohn: “describe[d] flue gas as that portion of the combustion system located well after the furnace at the much lower temperature range of 400°C to ambient air,” this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

252. In his Third Expert Report, Dr. Andrew Fry states: “As an initial matter, it is my opinion that a POSA would understand that the injection can occur at any *location* where flue gas exists in the system where the temperature is sufficient to cause the thermal decomposition of the thermolabile molecular bromine precursor chosen for use in the system. Contrary to Dr. Wilcox’s suggestion, the ’692 Patent does not limit the location of injection of the thermolabile molecular bromine precursor to temperatures at which molecular bromine formation is most thermodynamically favored or temperatures at which conversion of elemental mercury to mercuric bromide is most thermodynamically favored. There is simply nothing in the patent or file history that suggests such a limitation. Rather, a POSA would understand that flue gas cools as it flows ‘downstream,’ and as long as the thermolabile molecular halogen precursor is injected in a location where the temperature is high enough to cause thermal decomposition of the thermolabile molecular halogen precursor, the formation of molecular bromine and oxidation of

mercury to mercuric bromide may take place at any location along the flue gas path where such reactions are thermodynamically possible.” Dkt. 80, Third Expert Report of Dr. Andrew Fry, ¶ 28.

Objection: Pl. PFF ¶ 252 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites an expert’s opinion.

Response: Undisputed.

253. During the ’692 Patent Reexamination, Klaus Oehr stated:

Neither the Oehr Patent specification (“Specification”) nor the Oehr Patent file history (“File History”) defines “flue gas” and “thermolabile” to mean a temperature range. The Specification and the File History make it clear that “thermolabile” is an adjective describing a compound or combination of compounds that form molecular halogen at flue gas temperatures typical of coal- fired power plants with no set limitations on the temperature at which such halogens are formed. Oehr Patent, 3:55-5:33; Oehr File History at 81-82.

The references [Alstom] relies on demonstrate that the terms “flue gas” and “thermolabile” are not limited to temperature range of 127°C to 527°C. Madden (U.S. Patent 6,372,187 to Madden; “Madden”), for example does not define “flue gas” to be “the upper furnace cavity” as [Alstom] alleges, but quite clearly refers to a portion of the “flue gas” that resides in the upper furnace cavity. Madden, 4:1-13. To persons of ordinary skill in the art, “flue gas” means that region of combustion gases from the upper furnace region through the emission control devices. Madden, 4:1-13; *id.* at Fig. 2; U.S. Patent No. 5,787,823 (“Knowles”) at FIG. 1. Similarly, Mendelsohn (U.S. Patent No. 5,900,042 to Mendelsohn; “Mendelsohn”) does not define “flue gas” to have an upper temperature limit of 400°C. Contrary to [Alstom’s] assertion, Mendelsohn refers to an upper limit of 400 °C for “typical systems” which refers to the temperature range at which Mendelsohn’s apparatus is operated. Mendelsohn, 2:18-32. Accordingly, the prior art is quite clear and consistent in its teaching that “flue gas” refers to combustion gases which reside in the “flue” – the region of a coal combustor from above the combustion zone through the particulate collection system.

Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Patent Owner’s Brief, at pg. 6.

Objection: Pl. PFF ¶ 253 is vague and ambiguous. Plaintiffs have not defined “flue gas,” and it is not clear how the term is being used in this asserted fact.

Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Pl. PFF ¶ 253 mischaracterizes the quoted statement as being made by Oehr. The statement was actually made by Hazelmore Research Ltd. D.I. # 38-10, *Alstom Power Inc. v. Hazelmore Research Ltd.*, Appeal 2013-008262, Patent Owner’s Brief, at 6. Further, Pl. PFF ¶ 253 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Patent Owner’s Brief in *Alstom Power Inc. v. Hazelmore Research Ltd.*, which is not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Patent Owner’s Brief is offered to prove any fact other than it contains the quoted text, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

254. Figure 1 in U.S. Patent No. 5,787,823 (“Knowles”) is shown below.

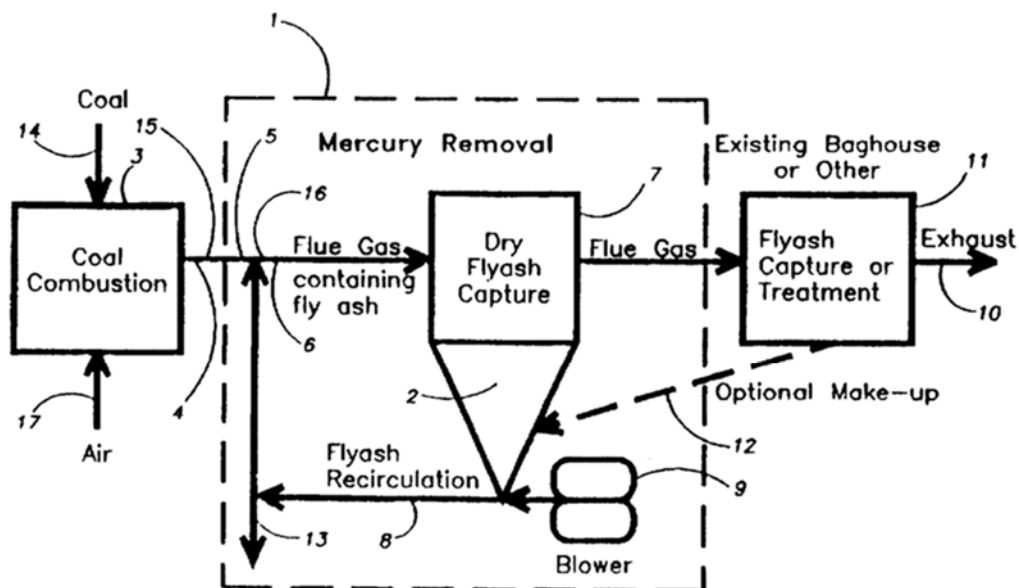


Figure 1

Dkt. 38-10, U.S. Patent No. 5,787,823 (“Knowles”), Figure 1.

Response: Undisputed that the ‘823 Patent (“Knowles”) contains Figure 1; that does not make the figure admissible for all purposes, however.

255. Knowles states that according to the invention, the “preferred location for the mercury sorption system is in the combustion gas path, where the combustion gas is preferably between about the temperatures of 100°C. (212°F.), and 200°C. (392°F.). In a conventional industrial scale boiler, this temperature regime often exists after a heat exchanger. . . .” Dkt. 38-10, U.S. Patent No. 5,787,823 (“Knowles”), at 7:8-13.

Response: Undisputed that Knowles contains the quoted statement; that does not make the statement admissible for all purposes, however.

256. Knowles states that in Fig. 1, coal 14 is burned in combustion chamber 3. Dkt. 38-10, U.S. Patent No. 5,787,823 (“Knowles”), at 9:40-41.

Response: Disputed as unsupported. Pl. PFF ¶ 256 is taken out of context and incomplete. Knowles states, “coal 14 or other fuels containing significant inorganic materials, is burned in a combustion chamber 3” (emphasis added). D.I. # 38-10, Knowles 9:40–41 (emphasis added).

257. Knowles states: “The byproducts of combustion in chamber 3 is ‘a combustion gas stream 4’ which travel through conduit 15.” Dkt. 38-10, U.S. Patent No. 5,787,823 (“Knowles”), at 9:41-43.

Response: Undisputed that the Knowles contains the quoted statement, but that does not make the statement admissible for all purposes.

258. Knowles states that this flue gas “contains fly ash 2 and mercury 16, in addition to the normal gaseous constituents of combustion.” Dkt. 38-10, U.S. Patent No. 5,787,823 (“Knowles”), at 9:43-45.

Objection: Pl. PFF ¶ 258 is vague and ambiguous. Plaintiffs have not defined “this flue gas” or “fly ash,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation.

D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—Knowles at 9:43–35—does not support the stated proposition. Knowles does not state that “flue gas contains fly ash 2 and mercury 16, in addition to the normal gaseous constituents of combustion.” Rather, the record shows that Knowles states, “[t]he combustion gas stream contains flyash 2 and mercury 16, in addition to the normal gaseous constituents of combustion.” D.I. # 38–10, Knowles at 9:43–45. Further, to the extent that Knowles contains the quoted statement, that does not make the statement admissible for all purposes.

259. Knowles refers to this flue gas as “combustion gas” when it is all the way downstream at the temperatures of 100°C and 200°C, which is the range at the particulate collection devices. Dkt. 38-10, U.S. Patent No. 5,787,823 (“Knowles”), at 9:45-48.

Objection: Pl. PFF ¶ 259 is vague and ambiguous. Plaintiffs have not defined “this flue gas,” and it is not clear how the term is being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—Knowles at 9:45–48—does not support the stated proposition. In the lines cited by Plaintiffs, Knowles does not refer to “flue gas” or state that flue gas is referred to as “‘combustion gas’ when it is all the way downstream.” Rather, the record shows that Knowles states that “[t]he means 1 of removing mercury Is [*sic*] placed preferentially in the combustion gas stream 4 where the temperature of said combustion gas stream 4 is between 100° C and 200° C.” D.I. # 38–10, Knowles at 9:45–48.

260. Klaus Oehr testified in his deposition that: “combustion gases . . . reside in the

flue region, of coal combustion, but it's not restricted. It just -- that -- that could be a portion of flue gas. But all reference to combustion flue gas, as far as I'm concerned, refers to any gas anywhere in the combustor that's generated from combustion no matter where it's located." Dkt. 69, Deposition of Klaus Oehr, January 17, 2019, at 259:25-260:8.

Objection: Pl. PFF ¶ 260 is vague and ambiguous. Plaintiffs have not defined "flue gas," and it is not clear how the term is being used in this asserted fact.

Also, the term "flue gas" is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 260 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs cite the deposition of Oehr, which is not sponsored by sworn expert testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent Oehr's testimony is offered to prove the meaning and location of "combustion flue gas," this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

261. In the '692 Patent Reexamination, the PTAB stated:

Thus, the broadest reasonable interpretation of the term "flue gas" includes gases at temperatures up to 1260°C or higher. We find this broader interpretation of "flue gas" to be reasonable because the prior art related to treating flue gas from coal combustion supports the finding that flue gas treatment materials may be injected in several locations between the boiler and the stack outlet.

Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Decision on Appeal, at p. 6-7.

Objection: Pl. PFF ¶ 261 is vague and ambiguous. Plaintiffs have not defined "flue gas" or "injected," and it is not clear how the terms are being used in this asserted fact. Also, the terms "flue gas" and "injected" are hotly contested in this

litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2.

It is not clear how Plaintiffs are using the terms in this factual assertion.

Response: Undisputed that the cited PTAB decision contains the quoted text.

262. In her Second Expert Report, Dr. Wilcox stated: “I do note that the Board indicated a temperature of 1260 °C ‘or higher.’ Decision on Appeal, Dec. 17, 2013, at 7. A POSA would understand the reference to ‘or higher’ to mean that the temperatures that the Board describes for each location are not exact, and that the Board simply avoided announcing an exact temperature limit for the upper region of the boiler. Indeed, earlier in the same paragraph the Board cites to a different piece of prior art that describes the typical temperature at the exit of the furnace (i.e., within the upper region of the furnace) as around 1371 °C (2500 °F). *Id.* at 6 (citing Granite). Regardless of what the exact typical temperature is, the Board explicitly chose the temperature that corresponded to the upper region of the boiler rather than a temperature at ‘the coal input to the boiler.’” Dkt. 82, Second Expert Report of Dr. Jennifer Wilcox, ¶ 30.

Response: Undisputed.

263. In her First Expert Report, Dr. Wilcox cited Figure 4 from *Steam* and stated: “The highest temperature in the combustion zone is typically ~ 1370 °C. As the combustion gases exit the boiler they proceed through the economizer, where they cool from approximately 650 °C down to 370 °C. The flue gas in the generalized plant shown in Figure 4 then passes through a typical series of emissions controls and heat recovery systems.” Dkt. 81, First Expert Report of Dr. Jennifer Wilcox, ¶ 43.

Objection: Pl. PFF ¶ 263 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites an expert’s opinion.

Response: Disputed as unsupported in part. Disputed that Wilcox cited to *Steam* for the proposition stated in Pl. PFF ¶ 263. Undisputed that Wilcox made the statement quoted in Pl. PFF ¶ 263. D.I. # 81, First Wilcox Report ¶ 43.

264. Madden states: “[t]he temperatures for injection of the sorbent [into the flue gas stream] range from those typical at the coal input to the boiler (3000°F[1649°C]) and in the upper portion 28 of a furnace (2300°F[1260°C]) to very low temperatures such as at the outlet of a wet scrubber (150°F[66 °C].” Dkt. 38-12, U.S. Patent No. 6,372,187, at 3:64-4:1.

Objection: Pl. PFF ¶ 264 is vague and ambiguous. Plaintiffs have not defined “injection,” “the flue gas stream,” “the boiler,” or “the upper portion 28 of a furnace,” and it is not clear how the terms are being used in this asserted fact.

Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended

Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs' cited evidence—Madden at 3:64–4:1—does not assert the stated proposition. Madden does not refer to “the flue gas stream” in the cited text. D.I. # 38-12, U.S. Patent No. 6,372,187, at 3:64–4:1. Further, to the extent that Madden contains the quoted statement, that does not make the statement admissible for all purposes.

265. Dr. Andrew Fry, in his Third Expert Report stated: “In my opinion, the PTAB’s reference to flue gas including gases at temperatures of ‘1260 °C or higher,’ is not an attempt by the PTAB to limit ‘flue gas’ to the ‘upper portion of the furnace,’ as Dr. Wilcox opines; but rather, to make clear that the flue gas includes gases that are at the temperatures found in the combustion zone of the furnace. Notably, Dr. Wilcox fails to address the PTAB’s statement that ‘the prior art related to treating flue gas from coal combustion supports the finding that flue gas treatment materials may be injected in several locations between the boiler and the stack outlet.’ In my opinion, this statement, which specifically references the ‘boiler,’ makes clear that the PTAB intended the definition of ‘flue gas’ to encompass the gas from the combustion of coal.” Dkt. 80, Third Expert Report of Dr. Andrew Fry, ¶ 33.

Response: Undisputed.

266. Dr. Andrew Fry, in his Third Expert Report stated: “Moreover, in my opinion, the evidence that the PTAB relies on to support their interpretation of the term ‘flue gas’ is further support that the PTAB intended that ‘flue gas’ encompass the gas produced during the combustion of coal. For example, the PTAB cites to Granite, et al., ‘Sorbents for Mercury Removal from Flue Gas,’ DOE (1998) at 3-4, to explain that the ‘[t]he temperature of flue gas in a typical coal utility system will vary widely along the process path. The flue gas will exit the furnace at approximately 2500°F [1371°C]. Heat is then extracted from the flue gas. Flue gas will leave the economizer at around 800°F [427°C]. Flue gas exits the air preheater at about 450°F [232°C]. Unscrubbed flue gas enters the stack at around 300°F [148°C] in order to be above the acid dew point. Therefore, a sorbent that removes mercury from flue gas could operate anywhere between 300 [148°C] to 2500°F [1371 °C], depending upon where the sorbent contacts the flue gas.’ The PTAB also relies on U.S. Patent No. 6,372,187 to Madden et al., issued April 16, 2002 to support its position of ‘flue gas.’ 187 Patent at 3:64-4:1 (‘The temperatures for injection of the sorbent range from those typical at the coal input to the boiler (3000°F[1649°C]) and in the upper portion 28 of a furnace (2300°F[1260°C]) to very low temperatures such as at the outlet of a wet scrubber (150°F[66°C].’)” Dkt. 80, Third Expert Report of Dr. Andrew Fry, ¶ 34.

Response: Undisputed.

[PFF ¶¶ 267 through 300 omitted by Plaintiffs]

301. In her Opening Expert Report, Dr. Wilcox states: “The highest temperature in the combustion zone is typically ~ 1370 °C.” Dkt. 81, Opening Expert Report of Jennifer Wilcox, ¶ 43.

Response: Undisputed.

302. Steam states the following: “The total gaseous products of combustion are referred to as *wet flue gas*.” Dkt. 38-15 (*Steam*), pg. 10-16 (emphasis in original).

Objection: Pl. PFF ¶ 302 is vague and ambiguous. Plaintiffs have not defined “flue gas,” and it is not clear how the term is being used in this asserted fact.

Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Moreover, Pl. PFF ¶ 302 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Secs. I.B.4 and I.C.1, because the citation does not correctly identify where in the record the evidence is located.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—*Steam*—does not support the stated proposition. *Steam* does not mention that “[t]he total gaseous products of combustion are referred to as *wet flue gas*” or that “[t]he total gaseous products excluding moisture are referred to as *dry flue gas*.” D.I. # 99, Klingman Decl. Ex. 10. Further, to the extent that *Steam* contains the quoted statement, that does not make the statement admissible for all purposes.

303. At her deposition, Dr. Wilcox gave the following testimony:

Q: Just for the record, it’s a -- Wilcox 5 is an article that begins production numbers NALC01062772, and the title is CFD Investigation of Combustion in 660 Megawatt Tangential Fired Boiler. Among the authors is a Mr. Ashish Fande.

Q: Do you see that?

A: I do.

Q: Do you happen to know Mr. Ashish Fande?

A: No, I don't know him.

Q: Do you know any of the authors that are listed there?

A: I do not.

Q: Do you believe you've ever seen this article before?

A: I might have, but I don't -- I can't recall it.

Q: Do you see at the top it indicates it comes from the International Journal of Engineering Research and Technology?

A: Um-hum.

Q: Is that a publication with which you're familiar?

A: I could have -- I could have read papers in this journal before, but I can't specifically recall when.

Q: Have you heard of that journal before, though?

A: I mean, it's vaguely familiar, but a lot of these journals sound similar, so it's hard to say I've never seen it.

Dkt. 74, Deposition of Jennifer Wilcox, Ph.D., March 29, 2019, pg. 152, l. 24–p. 154, l.

4.

Response: Undisputed that Wilcox testified as quoted above. That Wilcox so testified does not make the testimony admissible for all purposes, however.

304. U.S. Pats. Nos. 6,206,685 and 6,471,506 B1 (“The Zamansky patents”) each claim methods for reducing nitrogen gases in “combustion flue gas” share a common specification. C. Klingman Decl. ¶¶ 32 & 33 (Exhibits 31 & 32)).

Objection: Pl. PFF ¶ 304 is vague and ambiguous. Plaintiffs have not defined “combustion flue gas,” and it is not clear how the term is being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation.

D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Pl. PFF ¶ 304 is further vague and ambiguous because it lacks a comprehensible structure.

Additionally, Pl. PFF ¶ 304 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation is not correct.

Response: Undisputed. To clarify, the Zamansky patents are exhibits 31 and 32 of the Klingman Declaration.

305. The Zamansky patents teach that “combustion flue gas” forms immediately upon the introduction of the coal with the metal additive into the combustion zone of the boiler. C.

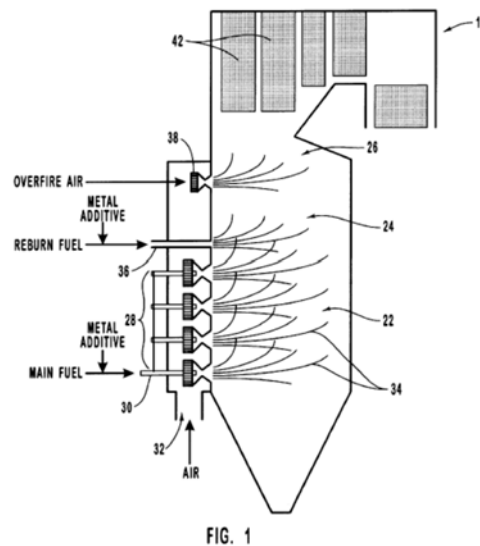
Klingman Decl. ¶¶ 32 & 33 (Exhibits 31 & 32). ('685 Patent) at 11:30-34.

Objection: Pl. PFF ¶ 305 is vague and ambiguous. Plaintiffs have not defined “combustion flue gas,” “the metal additive,” or “the combustion zone of the boiler,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 305 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation is not correct.

Response: Disputed as unsupported. To clarify, the Zamansky patents are exhibits 31 and 32 of the Klingman Declaration. Additionally, the cited lines in the Zamansky patents do not stand for the proposition asserted. The patent reads, “[n]atural gas was used as the reburning dial in all tests. The reburning fuel injector was elbow-shaped, and was installed along the centerline of the furnace, aligned in the direction of gas flow. Overfire air was injected through an elbow-shaped injector to burn out combustibles generated in the reburning zone.” D.I. # 99, Klingman Decl. (Ex. 31) at 11:30–34, Ex. 32 at 11:34–39. Further, Pl. PFF ¶ 305 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Zamansky patents, which are not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Zamansky patents are offered to prove where and when combustion flue gas forms, this evidence is inadmissible

hearsay and should be excluded per Fed. R. Evid. 802.

306. Figure 1 of the '685 Patent is reproduced below, wherein “22” identifies the “combustion zone,” and each line labeled “34” represents “combustion flue gas ... that flows in a downstream direction from combustion zone 22”



C. Klingman Decl. ¶ 32 (Exhibit 31). ('685 Patent) at 10:29-43.

Objection: Pl. PFF ¶ 306 is vague and ambiguous. Plaintiffs have not defined “combustion flue gas” or “the ‘combustion zone’,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Undisputed that the ‘685 Patent contains Figure 1, with the clarification that “22” identifies the “main combustion zone:” that does not make the figure admissible for all purposes, however.

307. The '685 Patent explains that for treating combustion flue gas, “additives can be injected with the main fuel, in the main combustion zone ...” which includes “combustion flue gas 34.” C. Klingman Decl. ¶ 32 (Exhibit 31) ('685 Patent) at 6:60-61; 7:1-2.

Objection: Pl. PFF ¶ 307 is vague and ambiguous. Plaintiffs have not defined “combustion flue gas” or “the main combustion zone,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 307 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not correctly identify where in the record the evidence is located.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the ’685 Patent—does not support the stated proposition. Rather, the ’685 Patent states:

As discussed in further detail below, the metal-containing *additives can be injected with the main fuel, in the main combustion zone*, with secondary or reburning fuel addition, or at several locations in the main combustion zone and reburning zone. As used herein, the terms “nitrogen oxides” and “NO_x” are used interchangeably to refer to the chemical species nitric oxide (NO) and nitrogen dioxide (NO₂). Other [*sic*] oxides of nitrogen are known, such as N₂O, N₂O₃, N₂O₄, and N₂O₅, but these species are not emitted in significant quantities from stationary combustion sources (except N₂O in some systems).

D.I. # 99, Klingman Decl. Ex. 31 at 6:59–7:3 (emphasis added). The cited lines of the patent do not say “combustion flue gas 34.” D.I. # 911, Klingman Decl.

Ex. 31, ’685 Patent at 6:59–7:3. Further, to the extent that the ’685 Patent contains the quoted statement, that does not make the statement admissible for all purposes.

308. U.S. Pat. Nos. 5,795,548 (the “’548 Patent”) and 5,814,288 (the “’288 Patent”) share a common specification and each claim methods for desulfurizing and removing particulates from flue gas produced during a combustion process in a boiler of a steam generator. C. Klingman Decl. ¶¶ 34 & 35 (Exhibits 33 & 34)).

Objection: Pl. PFF ¶ 308 is vague and ambiguous. Plaintiffs have not defined

“particulates,” “boiler,” or “flue gas produced during a combustion process in a boiler of a steam generator,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 308 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not correctly identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 308 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the ’548 and ’288 Patents, which are not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the ’548 and ’288 Patents are offered to prove the claimed methods, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

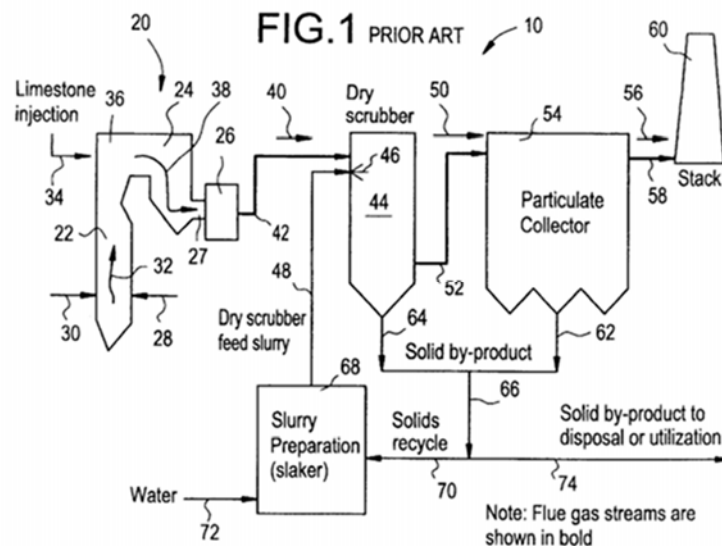
309. The specification of the ’548 and ’288 Patents includes Figure 1, which is reproduced below and shows a representation of the known LIDS system and process. C. Klingman Dec. ¶¶ 34 & 35 (Exhibits 33 & 34).

Objection: Pl. PFF ¶ 309 is vague and ambiguous. Plaintiffs have not defined “the known LIDS system and process,” and it is not clear how the term is being used in this asserted fact. Additionally, Pl. PFF ¶ 309 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not correctly identify with specificity where in the

record the evidence is located.

Response: Undisputed that the specification of the '548 and '288 Patents contains Figure 1 (shown in Pl. PFF ¶ 310); that does not make the figure admissible for all purposes. Further, Pl. PFF ¶ 309 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the '548 and '288 Patents, which are not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the '548 and '288 Patents are offered to prove any fact other than that they contain the referenced figure, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

310. [Omitted]



C. Klingman Decl. ¶¶ 34–35 (Exhibits 33–4) at Fig. 1.

311. The '288 Patent states that “flue gases” are “generated during the combustion processes occurring in the furnace.” C. Klingman Decl. ¶ 35 (Exhibit 34) ('288 Patent) at 2:20-22.

Objection: Pl. PFF ¶ 311 is vague and ambiguous. Plaintiffs have not defined “flue gases,” “the combustion processes,” or “the furnace,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the '288 Patent—does not support the stated proposition. Rather, the '288 Patent states that “[a]ir heater **26** transfers a portion of the heat from the *flue gases generated during the combustion process occurring in furnace 22* to incoming combustion air **28**.” D.I. # 104, Klingman Decl. Ex. 34, '288 Patent, at 2:19–22 (emphasis added). The cited lines of the patent do not say “combustion gas 34.” Further, to the extent that the '288 Patent contains the quoted statement, that does not make the statement admissible for all purposes.

312. The '288 Patent states that: “Combustion air 28 is combined with fossil fuel 30, typically coal containing some sulfur, in the furnace 22 producing flue gases 32 containing SO₂.” C. Klingman Decl. ¶ 35 (Exhibit 34) ('288 Patent) at 2:22-25.

Objection: Pl. PFF ¶ 312 is vague and ambiguous. Plaintiffs have not defined “[c]ombustion air,” “the furnace” or “flue gases,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Undisputed that the '288 Patent contains the quoted statement; that

does not make the statement admissible for all purposes, however.

313. The '288 Patent states that: "Limestone (CaCO_3) 34 is finely pulverized and injected as a dry powder into the flue gases 32 in an upper portion 36 of the furnace 22 of steam generator 20." C. Klingman Decl. ¶ 35 (Exhibit 34) ('288 Patent) at 2:26-28.

Objection: Pl. PFF ¶ 313 is vague and ambiguous. Plaintiffs have not defined "injected," "the flue gases" or "the furnace," and it is not clear how the terms are being used in this asserted fact. Also, the terms "injected" and "the flue gas" are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion.

Response: Undisputed that the '288 Patent contains the quoted statement, but that does not make the statement admissible for all purposes.

314. In her Second Expert Report, Dr. Wilcox stated: "Indeed, the portion of the specification quoted by Dr. Fry explains the injection of limestone 'into the flue gases 32 in an upper portion 36 of furnace 22.'" Dkt. 82, Second Expert Report of Dr. Jennifer Wilcox, ¶ 44.

Response: Undisputed. To clarify, Wilcox is quoting Fry, who is quoting the '288 Patent.

315. The '288 Patent's Summary of the Invention section states:

One aspect of the present invention is drawn to a method for desulfurizing and removing particulates from flue gas produced during a combustion process in a furnace of a steam generator to produce treated flue gas.

C. Klingman Decl. ¶ 35 (Exhibit 34) ('288 Patent) at 4:14-17.

Objection: Pl. PFF ¶ 315 is vague and ambiguous. Plaintiffs have not defined "particulates," "flue gas," or "treated flue gas," and it is not clear how the terms are being used in this asserted fact. Also, the term "flue gas" is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiff is using the terms in this factual assertion.

Response: Undisputed that the '288 Patent contains the quoted statement, but that does not make the statement admissible for all purposes.

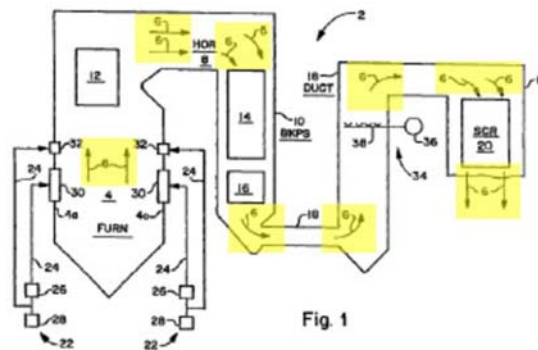
316. The claims of the '288 Patent also refer to the presence of flue gas in the furnace. *See generally*, C. Klingman Decl. ¶ 35 (Exhibit 34) ('288 Patent) at 9:45-12:12.

Objection: Pl. PFF ¶ 316 is vague and ambiguous. Plaintiffs have not defined “flue gas” or “the furnace,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation.

D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiff is using the terms in this factual assertion.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the ‘288 Patent—does not support the stated proposition that there is flue gas in the furnace. Rather, the record shows that there is combustion in the furnace. The patent says, “[a] method for desulfurizing and removing particulates from flue gas produced during a combustion process in a furnace of a steam generator to produce treated flue gas.” D.I. # 104, Klingman Decl. Ex. 34, ‘288 Patent, at 9:47–49.

317. The '894 Patent states that “[t]he hot gases that are produced from this combustion [are] commonly referred to as flue gases 6” The '894 Patent shows these “flue gases” as moving upward through the boiler, through a horizontal pass, and then through an SCR. The path of the “flue gases” is highlighted in Figure 1 below:



Dkt. 78–22, First Expert Report of Dr. Fry, Exhibit W.

Objection: Pl. PFF ¶ 317 is vague and ambiguous. Plaintiffs have not defined “[t]he ’894 Patent,” “this combustion,” “flue gases” or “the boiler,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiff is using the terms in this factual assertion. Additionally, Pl. PFF ¶ 317 misstates the evidence to the extent that the image in Pl. PFF is altered from the original document.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the ’894 patent—does not support the stated proposition. Rather, the ’894 patent states the following:

“The hot gases that are produced from this combustion, commonly referred to as flue gases 6 and which may act as a heat exchange medium, rise upwardly within the furnace volume 4 and give up heat to the working fluid of a thermodynamic steam cycle. The working fluid passes through the furnace waterwall tubes 4a which in a conventional manner line all four walls of the furnace volume 4. The flue gases 6 then exit the furnace volume 4 through a horizontal pass (HOR), generally designated by reference numeral 8.

D.I. # 78-22, ’894 Patent, at 6:15–23 (emphasis added).

Moreover, the highlighting in Figure 1 as represented in Pl. PFF ¶ 317 is not present in the patent. Further, to the extent that the ’894 Patent contains the quoted statement and Figure 1, that does not make either the statement or the figure admissible for all purposes.

318. McGraw-Hill Dic’y of Scientific & Technical Terms, defines “flue gas” as “gaseous combustion products from a furnace.” 5th Edition, 1994. Dkt. 38-13, Plaintiffs’ Second Amended Complaint (Exhibit I).

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 318 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the McGraw-Hill Dictionary of Scientific & Technical Terms, which is not properly authenticated or sponsored by sworn testimony. Accordingly, to the extent the McGraw-Hill Dictionary of Scientific & Technical Terms is offered to prove the definition of “flue gas,” this evidence is inadmissible hearsay and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c), Fed. R. Evid. 702, and Fed. R. Evid. 802.

319. The Academic Press Dic’y of Science & Technology defines “flue gas” as “the gaseous combustion products generated in a furnace.” 1992. Dkt. 38-14, Plaintiffs’ Second Amended Complaint (Exhibit J).

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 319 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Academic Press Dictionary of Science & Technology, which is not properly authenticated or sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Academic Press Dictionary of Science & Technology is offered to prove the definition of “flue gas,” this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802. To clarify, the quoted text defines “flue gas” as “the gaseous combustion product generated in a furnace.” D.I. # 38-14, SAC Ex. J, ACADEMIC PRESS DICTIONARY OF SCIENCE AND TECHNOLOGY (Christopher Morris Ed. 1992).

320. Appendix B of the text Combustion Engineering includes a definition of “flue gas” and defines that term as “[t]he gaseous products of combustion in the flue to the stack.” Combustion Engineering: A Reference Book on Fuel Burning and Steam Generation (2nd ed., 1967), C. Klingman Decl. ¶ 36 (Exhibit 35), Appendix B-13.

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 320 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite Appendix B of the text COMBUSTION ENGINEERING, which is not properly authenticated or sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent COMBUSTION ENGINEERING is offered to prove the meaning or location of “flue gas,” this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

321. In a chapter titled “Combustion and Boiler Calculations,” Combustion Engineering states the following: “These calculations are subject to the allowances for unburned carbon. This is because not all the carbon is burned. Some of it drops into the ashpit and some is carried out of the furnace with the flue gas.” C. Klingman Supp. Decl. ¶ 3 (Exhibit 53), at 21-8 (emphasis added).

Objection: Pl. PFF ¶ 321 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not correctly identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported. The exhibit cited for proof of PFF ¶ 321 does not contain the relevant page. Further, Pl. PFF ¶ 321 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite a chapter of the text COMBUSTION ENGINEERING, which is not properly authenticated or sponsored

by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent COMBUSTION ENGINEERING is offered to prove the location of flue gas, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

322. Dr. Andrew Fry is a Professor of Chemical Engineering at the University of Utah, and has spent most of his career studying technologies relating to coal combustion, gasification and power generation, including extensive study of various mercuric reduction processes and technologies used within the coal-fired power plant industry. Dkt. 79, Second Report of Dr. Fry, [¶¶ 7-17.

Response: Undisputed.

323. Dr. Fry worked at a power plant from July 1992 to December 1995. Dkt. 79, Second Report of Dr. Fry invalidity, ¶9; Dkt. 79-1 (CV attached to report).

Response: Undisputed.

324. Dr. Fry has testified that “flue gas” is present in the entire furnace of an operating coal-fired power plant—including throughout the combustion zone. *See generally* Dkt. 78, First Report of Dr. Fry.

Objection: Pl. PFF ¶ 324 is vague and ambiguous. Plaintiffs have not defined “flue gas,” “the entire furnace,” or “the combustion zone,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 324 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, and because the citation does not identify with specificity where in the record the evidence is located.

Response: Undisputed.

325. At her deposition, Dr. Jennifer Wilcox testified as follows:

Q: And just to be clear, you've never operated a power plant yourself, correct?

A: I have never operated a power plant, that is correct.

Q: How many power plants have you actually toured:

A: Probably about five, something like that, on the order of.

Q: Over the span of roughly 2004 till today?

A: Correct.

Q: And that includes the one that you toured for purposes of this case?

A: That's a good question. Probably -- probably about five, yeah.

Q: And the other four, then, best you recall, roughly when did you tour those?

A: Over the period of probably 2005 to current.

Dkt. 74, Deposition of Jennifer Wilcox, Ph.D., March 29, 2019, pp. 48:16-25–49:1-8.

Response: Undisputed that Wilcox testified as quoted above. That Wilcox so answered does not make the testimony admissible for all purposes, however.

326. Dr. Bruce Keiser has an undergraduate degree in Chemistry and a Ph.D. in Inorganic Chemistry. Dkt. 38-17, Plaintiffs' Second Amended Complaint, Exhibit M (Declaration of Bruce A. Keiser, Ph.D., May 17, 2016 at ¶ 5).

Response: Undisputed.

327. Dr. Keiser stated in his May 17, 2016 declaration: "It is my expert opinion that a person of ordinary skill in the art at the time of the '692 Patent invention would have understood the term 'coal combustion flue gas' to mean gas that is produced from coal combustion." Dkt. 38-17, Plaintiffs' Second Amended Complaint, Exhibit M (Declaration of Bruce A. Keiser, Ph.D., May 17, 2016 at ¶ 11).

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 327 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Pl. PFF ¶ 327 cites the declaration of Keiser, who is not a timely disclosed or qualified expert on the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c).

328. Dr. Keiser stated in his May 17, 2016 declaration: "Because coal combustion flue gas is generated by coal combustion, it is present in the combustion zone of an operating coal furnace or boiler. It is my expert opinion that at the time of the '692 Patent invention, a person having ordinary skill would have this understanding." Dkt. 38-17, Plaintiffs' Second Amended Complaint, Exhibit M (Declaration of Bruce A. Keiser, Ph.D., May 17, 2016 at ¶ 12).

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 328 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Pl. PFF ¶ 328 cites the declaration of Keiser, who is not a timely disclosed or qualified expert on the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c).

329. John Meier has a Bachelor of Science Degree in Civil Engineering and extensive experience in the operations of coal-fired power plants. Dkt. 38-18, Plaintiffs' Second Amended Complaint, Exhibit N (Declaration of John Meier, May 17, 2016 at ¶ 2-3).

Response: Undisputed.

330. John Meier stated in his May 17, 2016 declaration: "In my expert opinion, a person of ordinary skill in the art at the time of the invention of the '692 Patent would have understood the term 'coal combustion flue gas' to mean gas that is produced from coal combustion." Dkt. 38-18, Plaintiffs' Second Amended Complaint, Exhibit N (Declaration of John Meier, May 17, 2016) at ¶ 9.

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 330 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Pl. PFF ¶ 330 cites the declaration of Meier, who is not a timely disclosed or qualified expert on the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c).

331. John Meier stated in his May 17, 2016 declaration: "Coal combustion flue gas is present in the combustion zone of an operating coal furnace or boiler because coal combustion flue gas is generated by coal combustion. It is my expert opinion that a person having ordinary skill at the time of the '692 Patent invention would have this understanding." Dkt. 38-18, Plaintiffs' Second Amended Complaint, Exhibit N (Declaration of John Meier, May 17, 2016 at ¶ 12).

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 331 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Pl. PFF ¶ 331

cites the declaration of Meier, who is not a timely disclosed or qualified expert on the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P.

26(a)(2)(D) and 37(c).

[PFF 332-400 omitted by Plaintiffs]

401. Defendants propose that “flue gas” should be construed to mean: “[t]he gases in the region from above the combustion zone through the stack outlet that result from the substantially-complete combustion of coal.” Dkt. 88, Amended Joint Table of Terms Requiring Construction, pg. 2.

Response: Undisputed.

402. Defendants propose that “injecting . . . into said flue gas” should be construed to mean: “injecting into the flue gas stream after the boiler and before the stack outlet.” Dkt. 88, Amended Joint Table of Terms Requiring Construction, pg. 2.

Response: Undisputed.

403. On and before 2014, two years before Defendant Columbia decided to join with Portage LLC to use the Chem-Mod Process, Columbia Unit 1 wanted to reduce mercury emissions for regulatory reasons (not Section 45 tax credit reasons). Dkt. 66, Deposition Transcript of Jerald Lokenvitz, dated December 5, 2018, at 231:5–259:6; C. Klingman Supp. Decl. ¶ 4 (Exhibit 54) (Lokenvitz Depo. Exhibit 18); ¶ 5 (Exhibit 55) (Lokenvitz Depo. Exhibit 19); ¶ 6 (Exhibit 56) (Lokenvitz Depo. Exhibit 20); ¶ 7 (Exhibit 57) (Lokenvitz Depo. Exhibit 21); ¶ 8 (Exhibit 58) (Lokenvitz Depo. Exhibit 22); ¶ 9 (Exhibit 59) (Lokenvitz Depo Exhibit 23).

Objection: PFF ¶ 403 is vague and ambiguous. Plaintiffs have not defined “decided to join with,” and it is not clear how the term is being used in this asserted fact. Additionally, Pl. PFF ¶ 403 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, Secs. I.B.4 and I.C.1, and because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the deposition transcript of Lokenvitz at 231:5–259:6 and associated exhibits—does not support the stated propositions that “Defendant Columbia 1” “decided to join

with Portage LLC” and “Columbia Unit 1 wanted to reduce mercury emissions for regulatory reasons (not Section 45 tax credit reasons).” D.I. # 66, Lokenvitz Dep. 231:5–259:6; D.I. # 99, Klingman Decl. Exs. 54, 55, 56, 57, 58, 59.

404. To do this, they considered several options, and opted for a process that added a calcium bromide solution (the same as MerSorb, being 51% calcium bromide and 49% water) to the coal as it passed through the feeder and then onto the pulverizer. Dkt. 66, Deposition Transcript of Jerald Lokenvitz, dated December 5, 2018, at 231:5–259:6; C. Klingman Supp. Decl. ¶ 4 (Exhibit 54) (Lokenvitz Depo. Exhibit 18); ¶ 5 (Exhibit 55) (Lokenvitz Depo. Exhibit 19); ¶ 6 (Exhibit 56) (Lokenvitz Depo. Exhibit 20); ¶ 7 (Exhibit 57) (Lokenvitz Depo. Exhibit 21); ¶ 8 (Exhibit 58) (Lokenvitz Depo. Exhibit 22); ¶ 8 (Exhibit 58) (Lokenvitz Depo. Exhibit 22); ¶ 9 (Exhibit 59) (Lokenvitz Depo Exhibit 23).

Objection: PFF ¶ 404 is vague and ambiguous. Plaintiffs have not defined

“opted for,” and it is not clear how the term is being used in this asserted fact.

Additionally, Pl. PFF ¶ 404 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the deposition transcript of Lokenvitz at 231:5–259:6 and associated exhibits—does not support the stated proposition that “they” “opted for a process that added a calcium bromide solution . . . to the coal as it passed through the feeder and then onto the pulverizer.” Rather, the record shows that AECS contracted for all uses of calcium bromide for mercury control at Columbia Unit 1. D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 74, First Amendment at Schedule F Section D; D.I. # 127, Meier Dep. (Apr. 26, 2019) 61:21–77:13.

405. At that time, it recognized that it did not need a license to inject calcium bromide mixed with coal into the combustion zone. Dkt. 66, Deposition Transcript of Jerald Lokenvitz, dated December 5, 2018, at 231:5–259:6; C. Klingman Supp. Decl. ¶ 4 (Exhibit 54) (Lokenvitz Depo. Exhibit 18); ¶ 5 (Exhibit 55) (Lokenvitz Depo. Exhibit 19); ¶ 6 (Exhibit 56) (Lokenvitz Depo. Exhibit 20); ¶ 7 (Exhibit 57) (Lokenvitz Depo. Exhibit 21); ¶ 8 (Exhibit 58) (Lokenvitz Depo. Exhibit 22); ¶ 8 (Exhibit 58) (Lokenvitz Depo. Exhibit 22); ¶ 9 (Exhibit 59) (Lokenvitz

Depo Exhibit 23).

Objection: PFF ¶ 405 is vague and ambiguous. Plaintiffs have not defined who “it” is or “the combustion zone,” and it is not clear how the terms are being used in this asserted fact. Additionally, Pl. PFF ¶ 405 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the deposition transcript of Lokenvitz at 231:5–259:6 and associated exhibits—does not support the stated proposition that WPL recognized that it did not need a license to inject calcium bromide mixed with coal into the combustion zone. D.I. # 66, Lokenvitz, Dep. 231:5-259:6; D.I. # 99, Klingman Decl. Exs. 54, 55, 56, 57, 58, 59.

406. Dr. Wilcox testified at her deposition that flue gas is “born” in the combustion zone. Dkt. 74, Wilcox Depo Tr., at 137:13-138:13.

Response: Disputed in part. The testimony is taken out of context and incomplete. The record shows that at 137:13–138:13, Wilcox testified as follows:

Q. I understand that's your view. Are you -- is it your opinion that no one would use the term flue gas to refer to the gases resulting from combustion of coal even as they exist in the combustion zone?

MR. EVALL: Objection to form, lack of foundation.

A. When coal is combusted, it reacts with oxygen. Oxygen dissociates on the surface, and the components of flue gas start to form. They are quickly replenished with fuel. It's a continuous process combustion. You cannot deny that carbon monoxide, carbon dioxide and water vapors start to form upon combustion. But nobody would point to the area that's dominant in fuel and call it flue gas. It doesn't mean it's not borne there.

D.I. # 69, Wilcox Dep. 137:22–138:13.

That Wilcox so answered does not make her testimony admissible for all purposes, however.

407. Dr. Wilcox testified at her deposition that in a location where flue gas represents a “majority,” one could call it “flue gas.” Dkt. 74, Wilcox Depo Tr., at 137: 13-21.

Objection: Pl. PFF ¶ 407 includes testimony that is taken out of context and incomplete. Additionally, Pl. PFF ¶ 407 is vague and ambiguous. Plaintiffs have not defined “flue gas,” and it is not clear how the term is being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Finally, Pl. PFF ¶ 407 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites an expert’s opinion.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the deposition transcript of Wilcox at 137:13–21—does not support the stated proposition. Rather, the record shows that Wilcox testified as follows:

Q. Are there some people that use the term flue gas to refer to the byproducts of the combustion?

A. *If the byproducts of combustion are accumulated in an area and represent the majority, then one could call that—just like the upper furnace, then one could call that a flue gas.* But nobody would point to an oven or to a combustion zone and call that flue gas.

D.I. # 74, Wilcox Dep. 137: 13–21 (emphasis added).

408. Dr. Wilcox testified at her deposition that “flue gas” should be understood to exist where the gases comprise “mostly flue gas.” Dkt. 74, Wilcox Depo Tr., at 124:13-125:16; 126:17-20; 137: 13-21.

Response: Undisputed.

409. Dr. Wilcox attempted to explain that the flue gas begins after the combustion zone. Dkt. 74, Wilcox Depo Tr., at 124: 13-127:5.

Objection: Pl. PFF ¶ 409 is vague and ambiguous. Plaintiffs have not defined “the flue gas” or “the combustion zone,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Pl. PFF ¶ 409 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the deposition transcript of Wilcox at 124:13–127:5—does not support the stated proposition. Rather, the record shows that Wilcox testified that combustion gases are considered flue gases at a point where “combustion has mostly completed.” D.I. # 74, Wilcox Dep. 124:13–127:5.

410. When shown the manual for Defendants’ plant, which showed the combustion zone being moved vertically within the furnace (by directing the injectors at different angles), Dr. Wilcox was unable to identify anywhere “flue gas” began, or how its beginning point differed, despite clear differences in the respective combustion zones. Dkt. 74, Wilcox Depo Tr., at 128:14–129:10; 321:1–331:4.

Objection: Pl. PFF ¶ 410 is vague and ambiguous. Plaintiffs have not defined “the manual,” “Defendants’ plant,” “the combustion zone,” “the furnace,” “the injectors” “flue gas,” “beginning point,” or “the respective combustion zones,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 410 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and

Sec. I.B.6, because it simply recites Plaintiffs' argument.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs' cited evidence—the deposition transcript of Wilcox at 128:14–129:10; 321:1–331:4—does not support the stated proposition. Rather, the record shows that during Wilcox's deposition, Plaintiffs' counsel attempted to get Wilcox to answer questions based on a hypothetical that did not comport with reality. Wilcox explained that “the flue gas is in the upper region,” but she could not be more exact because the cartoon she was being shown was not drawn to scale and the hypothetical was not realistic. D.I. # 74, Wilcox Dep. 321:1–331:4.

411. Dr. Fry uses the term “boiler” to refer to the entire portion of the plant in which heat is extracted to form steam. Dkt. 77, Deposition Transcript of Andrew Fry, 134:17-136:17.

Objection: Pl. PFF ¶ 411 is vague and ambiguous. Plaintiffs have not defined “the entire portion” or “the plant,” and it is not clear how the terms are being used in this asserted fact.

Response: Undisputed.

412. Dr. Wilcox uses the term “boiler” to refer to the entire portion of the plant in which heat is extracted to form steam. Dkt. 77, Deposition Transcript of Jennifer Wilcox, 55:25-56:16.

Objection: Pl. PFF ¶ 412 is vague and ambiguous. Plaintiffs have not defined “the entire portion” or “the plant,” and it is not clear how the terms are being used in this asserted fact.

Response: Disputed as unsupported. Plaintiffs' cited evidence—the deposition transcript of Wilcox at 55:25–56:16—does not support the stated proposition.

413. Dr. Wilcox opines that “[t]he only suggestions for the location of the flue gas are ‘after the superheater section’ or ‘in the economizer/ESP suggestion of the combustor,’ which are

both well downstream of the combustion zone.” Dkt. 82, Second Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 21.

Response: Undisputed.

414. In her Second Report, Dr. Wilcox opines that it was known at the time of the invention that there were three equivalent ways to get an additive into flue gas. One was to apply it first to the coal and then inject it with the pulverized coal. A second was to inject it into the combustion zone independent of the coal. And the third was to inject it into the flue gas stream downstream of the combustion zone, with only this last approach with only this last approach being referred to as “injecting into flue gas.” Dkt. 82, Second Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 54.

Objection: Pl. PFF ¶ 414 misstates the report to the extent that the text in Pl. PFF is altered from the document.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—paragraph 54 of the Second Wilcox Report—does not support the stated proposition. Rather, the record shows that Wilcox said the following:

[A]t the time of the application leading to the ’692 Patent, as well as today, there were at least three general categories of methods for introducing substances into a coal combustion system for the purpose of affecting the emissions. In one method, the substance is added to the coal before the coal is introduced into the boiler for combustion, either before or after the coal is pulverized. In a second method, the substance or substances could be introduced into the combustion zone of the furnace at the same time as the coal is introduced—either adjacent to the point of introduction of the coal, or at a different location. Third, substances can be injected into the flue gas, typically using lances or aspirators or other devices for introducing the material into the flue gas ductwork and dispersing it into the flue gas. As explained below, the ’692 Patent itself recognized and acknowledged those treatment methodologies in other contexts. A person of ordinary skill would understand ‘injecting. . . into said flue gas’ to be a term of art that refers to this third class of treatment methods.

D.I. # 82, Second Wilcox Report ¶ 54.

415. Dr. Fry has opined that the specification does at one point suggest injecting into the combustion zone. Dkt. 80, ¶ 61.

Objection: Pl. PFF ¶ 415 is vague and ambiguous. Plaintiffs have not defined

“the specification,” “injecting,” or “the combustion zone,” and it is not clear how the terms are being used in this asserted fact. Also, the term “injecting” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 415 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as unsupported. The citation provided, D.I. # 74, is Wilcox’s deposition; it is unclear which of the three Fry reports the Plaintiffs are citing.

416. The ’692 Patent explains that the inventive process “can be adjusted in numerous advantageous ways, e.g., by varying (i) droplet size during injection into flue gas, (ii) concentration of thermolabile species, and (iii) dosing level, etc.” Dkt. 38-1, ’692 Pat., at 6:40-43.

Objection: Pl. PFF ¶ 416 is vague and ambiguous. Plaintiffs have not defined “the inventive process,” and it is not clear how the term is being used in this asserted fact. Additionally, Pl. PFF ¶ 416 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I, because it uses legal characterization with a reference to “the inventive process.”

Response: Undisputed that the ’692 Patent contains the quoted statement; that does not make the statement admissible for all purposes, however.

417. Dr. Fry has explained that in his experience (experience which Dr. Wilcox simply does not have), “it primarily is the case that factors such as concentration and dosing levels are varied when a different injection site is being considered (for example, injecting into the combustion zone flue gas with the coal directly versus injecting the additive itself in the upper furnace.” Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 61.

Objection: Pl. PFF ¶ 417 violates the Court’s Standing Order on Motions for

Summary Judgment, Sec. I.B.6, because it simply recites an expert's opinion and Plaintiffs' argument.

Response: Disputed as unsupported. Plaintiffs' cited evidence—paragraph 61 of the Third Fry Report—does not support the stated proposition that Wilcox lacks relevant experience.

418. Indeed, even the inventor of the Chem-Mod Process, Mr. Comrie, agreed that injecting in with the coal, or injecting alone into the combustor, or injecting further downstream, all were equivalent ways to introduce additives to flue gas, and that one only might need to change the dosing level depending upon which approach used. *See generally* Dkt. 63, Deposition of Douglas Comrie.

Objection: Pl. PFF ¶ 418 is vague and ambiguous. Plaintiffs have not defined “injecting,” “the combustor,” or “flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “injecting” and “flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion. Additionally, Pl. PFF ¶ 418 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located, and Sec. I.B.6, because it recites Plaintiffs' argument, rather than a factual proposition.

Response: Disputed as unsupported. Taken in its entirety, the deposition transcript of Comrie does not support the stated proposition. Further, Pl. PFF ¶ 418 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Pl. PFF ¶ 418 cites the deposition of Comrie, who is not a timely disclosed expert on

the topic. Accordingly, this evidence should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c).

419. Klaus Oehr is a named inventor for U.S. Patent 6,250,235 (“Oehr ’235 Patent”). C. Klingman Supp. Decl. ¶ 10 (Exhibit 60) (Oehr ’235 Patent).

Response: Undisputed.

420. The Oehr ’235 Patent is mentioned in the ’692 Patent specification. Dkt. 38-1, ’692 Patent at 2:37, and Example 2.

Response: Undisputed.

421. The Oehr ’235 Patent states:

It is clear, however, that the maximum benefit of the current invention may be obtained under conditions where the lime plus lime fluxing additive come into intimate contact with the fossil fuel, e.g. coal or char, either by mixing them in their solid form prior to injection into the fossil fuel combustor, and/or by injecting them into a combustor with sufficient turbulence to cause collisions between the “fluxed lime” and the fossil fuel combustion ash.

C. Klingman Supp. Decl. ¶ 10 (Exhibit 60) (Oehr ’235 Patent) at 11:64-12:4.

Response: Undisputed that the Oehr ’235 Patent contains the quoted

statement; that does not make the statement admissible for all purposes, however.

422. The Oehr ’235 Patent is directed to a “method of treating a fossil fuel for combustion.” C. Klingman Supp. Decl. ¶ 10 (Exhibit 60) (Oehr ’235 Patent) at Abstract, 8:12- 13, claim 1-13:32-33.

Objection: Pl. PFF ¶ 422 misstates the evidence to the extent that the text in Pl. PFF is altered from the original document.

Response: Disputed in part as unsupported and contrary to the evidence.

Plaintiffs’ cited evidence—the ’235 Patent at 8:12–13—does not support the stated proposition. Rather, the record shows that the patent says, “[a]ccording to the invention there is provided a *method of treating a fossil fuel, especially coal or char, for combustion*, which includes heating the fossil fuel and an additive,

together with lime, in a combustion zone.” D.I. # 115-50, ’235 Patent, at 8:12–15 (emphasis added). Undisputed to the extent that the Oehr ’235 Patent contains the quoted statement; that does not make the statement admissible for all purposes, however.

423. Claim 1 of the Oehr ’235 Patent reads as follows:

A method of treating fossil fuel for combustion, comprising: heating a fossil fuel which contains ash and an additive in a combustion Zone together with lime, wherein the additive contains a lime flux that lowers the melting point of Said lime Sufficiently So that Said lime melts, wholly or partially.

C. Klingman Supp. Decl. ¶ 10 (Exhibit 60) (Oehr ’235 Patent) at claim 1.

Response: Undisputed that the Oehr ’235 Patent contains the text of Claim 1.

424. Claim 36 of the Oehr ’235 Patent reads as follows:

The method as claimed in claim 1, wherein the additive is injected into the combustion zone.

C. Klingman Supp. Decl. ¶ 10 (Exhibit 60) (Oehr ’235 Patent) at claim 36.

Response: Undisputed that the Oehr ’235 Patent contains the text of Claim 36.

425. Claim 40 of the Oehr ’235 Patent reads as follows:

The method as claimed in claim 37, wherein the additive is mixed with the fossil fuel before furnace injection.

C. Klingman Supp. Decl. ¶ 10 (Exhibit 60) (Oehr ’235 Patent) at claim 40.

Response: Undisputed that the Oehr ’235 Patent contains the text of Claim 40.

426. Claim 41 of the Oehr ’235 Patent reads as follows:

The method as claimed in claim 38, wherein the additive is mixed with the fossil fuel before furnace injection.

C. Klingman Supp. Decl. ¶ 10 (Exhibit 60) (Oehr ’235 Patent) at claim 40.

Response: Undisputed that the Oehr ’235 Patent contains the text of Claim 41.

427. U. S. Patent 4,729,882 (“Ide”) is directed to a process of removing mercury from gaseous emissions from municipal waste incineration. C. Klingman Supp. Decl. ¶ 11 (Exhibit 61)

(Ide).

Response: Undisputed.

428. Ide is discussed in the “Background” section of the ’692 Patent as being a method for mercury removal that the inventor described as not being suitable for use in in coal-fired power plants. Dkt. 38-1, ’692 Patent, at 1:29-48; *see also* . C. Klingman Supp. Decl. ¶ 11 (Exhibit 61) (Ide).

Objection: Pl. PFF ¶ 428 is vague and ambiguous. Plaintiffs have not defined “the inventor,” and it is not clear how the term is being used in this asserted fact.

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 428 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the ’692 Patent and characterize that patent’s discussion of the ’882 Patent (“Ide”), with no competent expert foundation. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the cited evidence is offered to prove the process claimed in the ’882 Patent (Ide), the evidence is inadmissible hearsay per Fed. R. Evid. 802.

429. Ide describes its method of reducing mercury from municipal incinerator wastes as involving either supplying a chloride-containing gas into the incinerator, or instead adding a chlorine-containing material into the incinerator. C. Klingman Supp. Decl. ¶ 11 (Exhibit 61) (Ide) at 4:4-11.

Objection: Pl. PFF ¶ 429 is vague and ambiguous. Plaintiffs have not defined “the incinerator,” and it is not clear how the term is being used in this asserted fact.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—Ide at 4:4–11—does not support the stated proposition. Rather, the record shows that the patent says, “[d]uring this, the incinerator 2 is supplied

with an acidic gas 4, which is hydrogen chloride, chlorine or the like. Instead of, or in addition to the acidic gas, a chlorine-containing material 6, e.g. plastics, salt or the like that contains chlorine or have chlorine action, may be introduced into the incinerator 2 for combustion with the mercury-containing wastes 1.” Ide at 4:4–11. Additionally, Pl. PFF ¶ 429 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs characterize the ‘882 Patent (Ide) with no competent expert foundation. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the cited evidence is offered to prove the process claimed in the ‘882 Patent (Ide), the evidence is inadmissible hearsay per Fed. R. Evid. 802.

430. In the ‘692 Patent, Ide’s mercury removal technique is described as “requir[ing] massive hydrogen chloride injection into mercury containing flue gas.” Dkt. 38-1, ‘692 Patent, at 1:28–47.

Objection: Pl. PFF ¶ 430 is vague and ambiguous. Plaintiffs have not defined “injection” or “flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation.

D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Undisputed that the ‘882 Patent (Ide) contains the quoted statement; that does not make the statement admissible for all purposes, however.

431. The inclusion of Ide into the ‘692 Patent illustrates that the ‘692 Patent disclosed all three known ways of injecting additives into flue gas, even though at the time, the inventor preferred the third of the three, the injection into the flue gas when it was downstream. Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 63.

Objection: Pl. PFF ¶ 431 is vague and ambiguous. Plaintiffs have not defined “all three known ways,” “injecting,” “flue gas,” or “injection,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “injecting” and “flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion. Additionally, Pl. PFF ¶ 431 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple propositions within the same numbered paragraph, and Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as unsupported. There is no evidence to support that including Ide in the ’692 Patent illustrates what Pl. PFF ¶ 431 asserts. Pl. PFF ¶ 431 is speculation, not a statement of fact.

432. U.S. Patent 5,435,980 (“Felsvang”) discloses introducing additives to increase the chloride content of flue gas. . C. Klingman Supp. Decl. ¶ 12 (Exhibit 62) (Felsvang).

Objection: Pl. PFF ¶ 432 is vague and ambiguous. Plaintiffs have not defined “flue gas,” and it is not clear how the term is being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported by admissible evidence. Pl. PFF ¶ 432 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite Felsvang, and Plaintiffs’ characterization of it is not sponsored by expert testimony. Accordingly, this evidence is an undisclosed and unqualified expert

opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c).

Furthermore, to the extent the cited evidence is offered to prove the process

claimed in Felsvang, the evidence is inadmissible hearsay per Fed. R. Evid. 802.

433. Felsvang explains that introducing additives to increase the chloride content of flue gas can be done by adding the additive to the coal before or during combustion, “or injecting into the flue gas upstream of or in the drying-absorption zone.” C. Klingman Supp. Decl. ¶ 12 (Exhibit 62) (Felsvang) at 4:41-47.

Objection: Pl. PFF ¶ 433 is vague and ambiguous. Plaintiffs have not defined “additives,” “flue gas,” or “injecting into the flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “flue gas” and “injecting into the flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion. Additionally, Pl. PFF ¶ 433 misstates the evidence to the extent that the text in Pl. PFF is altered from the original document and is taken out of context and incomplete.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—Felsvang at 4:41-47—does not contain the cited quote. Rather, the record shows that the patent says:

As supplement to or as alternative to incorporating chloride in the aqueous suspension of basic absorbent, the increase of chloride in the drying-absorption zone may be achieved by increasing the chloride concentration of the flue gas by supplying a chloride or chlorine containing material to the coal before or during the combustion thereof and/or by injecting gaseous HCl into the flue gas upstream of or in the drying-absorption zone.

D.I. # 104, Klingman Decl. Ex. 62, Felsvang at 4:39-47 (emphasis added).

Additionally, Pl. PFF ¶ 433 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent

expert opinion. Accordingly, this evidence is an undisclosed and unqualified expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c). Furthermore, to the extent that the '980 Patent (Felsvang) contains the quoted statement, that does not make the statement admissible for all purposes.

434. Felsvang states that “[b]y the process according to the present invention various measures may be used for increasing the amount of chloride in the drying-absorption zone.” C. Klingman Supp. Decl. ¶ 12 (Exhibit 62) (Felsvang) 4:23-25.

Response: Undisputed that the '980 Patent (Felsvang) contains the quoted statement; that does not make the statement admissible for all purposes, however.

435. Felsvang refers to “injecting gaseous HCl into the flue gas.” (4:45-46).

Objection: Pl. PFF ¶ 435 is vague and ambiguous. Plaintiffs have not defined “injecting” or “the flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “injecting” and “flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion. Additionally, Pl. PFF ¶ 435 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not correctly identify with specificity where in the record the evidence is located.

Response: Undisputed that the '980 Patent (Felsvang) contains the quoted statement; that does not make the statement admissible for all purposes, however.

436. Felsvang states “hydrogen chloride and activated carbon are together introduced into the flue gas....” C. Klingman Supp. Decl. ¶ 12 (Exhibit 62) (Felsvang) at 6:18-19.

Objection: PFF ¶ 436 is vague and ambiguous. Plaintiffs have not defined “the flue gas,” and it is not clear how the term is being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs

are using the term in this factual assertion. Additionally, Pl. PFF ¶ 436 violates the Court's Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not correctly identify with specificity where in the record the evidence is located.

Response: Undisputed that the '980 Patent (Felsvang) contains the quoted statement; that does not make the statement admissible for all purposes, however.

437. Felsvang states "the chlorine introduction may alternatively performed separately from the introduction of activated carbon or it may be performed without using activated carbon." C. Klingman Supp. Decl. ¶ 12 (Exhibit 62) (Felsvang), at 6:29-32.

Response: Undisputed that the '980 Patent (Felsvang) contains the quoted statement (with the clarification that the statement is that " . . . introduction may alternatively *be* performed . . ." (emphasis added)); that does not make the statement admissible for all purposes, however.

438. Claim 10 of Felsvang states the following:

In a process of removing noxious components including sulphur dioxide and mercury from hot flue gases originating from the combustion of coal, the chloride content of said coal being such that normal combustion thereof in a boiler forms a flue gas having a chloride content, calculated as Cl, less than 150 ppm by weight, in which process an-aqueous basic absorbent suspension having a chloride content, calculated as Cl, less than 0.1 percent by weight based on dry solids, is atomized to fine droplets which are contacted with the hot flue gas in the drying chamber of a drying absorption zone comprising a drying chamber and a particle collector and a duct connecting them, the water of said droplets evaporating leaving dry fine particles, and a part of the noxious components of the gas is simultaneously sorbed by the droplets and the fine particles, whereupon the flue gas with entrained dry fine particles is passed to the particle collector wherein contact between the particles and the flue gas causes a further absorption of noxious compounds, the improvement of increasing the amount of chloride in the drying-absorption zone to a mercury absorption improving quantity by increasing the chloride content of the flue gas before it reaches said zone or by adding sodium chloride or calcium chloride to the aqueous suspension or by applying both these measures.

C. Klingman Supp. Decl. ¶ 12 (Exhibit 62) (Felsvang), at claim 10.

Response: Undisputed that the '980 Patent (Felsvang) contains the text of

Claim 10.

439. Claim 12 of Felsvang states the following:

The process of Claim 10, wherein gaseous hydrogen chloride is added to the flue gas upstream of or into the drying-absorption zone to obtain a total chloride concentration in the flue gas of at least 1 ppm per weight.

C. Klingman Supp. Decl. ¶ 12 (Exhibit 62) (Felsvang), at claim 12.

Response: Undisputed that the '980 Patent (Felsvang) contains the text of Claim 12.

440. U.S. Patent No. 5,645,805 describes that the additive in that invention can be incorporated in to the fuel, or injected in the combustion zone, or the flue. C. Klingman Supp. Decl. ¶ 14 (Exhibit 64) (5,645,805).

Objection: Pl. PFF ¶ 440 is vague and ambiguous. Plaintiffs have not defined “injected,” “the combustion zone,” or “the flue,” and it is not clear how the terms are being used in this asserted fact. Also, the term “injected” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 440 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not correctly identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported. U.S. Patent No. 5,645,805 states that, “[t]he present invention seeks to use hydrophobic/hydrophilic organic alkaline earth metal salt mixtures . . . to reduce acid emissions. . . . Preferably the above mentioned additive is incorporated into the fuel but the additive containing the thermolabile compound may *be injected into either the combustion zone or the flue.*” D.I. # 99, Klingman Decl. Ex. 64 at 5:23–25, 5:46–49 (emphasis added).

441. U.S. Patent No. 8,142,548 describes an invention involving taking a portion of uncombusted coal and injecting it into flue gas later downstream “ahead of a particulate collection

device.” C. Klingman Supp. Decl. ¶ 13 (Exhibit 63) (U.S. Patent No. 8,142,548), at 2:11–48.

Objection: Pl. PFF ¶ 441 is vague and ambiguous. Plaintiffs have not defined “injecting” or “the flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the terms “injecting” and “flue gas” are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—U.S. Patent No. 8,142,548 at 2:11–48—does not stand for the proposition asserted. Rather, the record shows that the patent says, “[i]n another embodiment of the present inventions, the method includes exposing carbon enriched alkaline coal ash particles derived from partial coal combustion to a halogen containing atmosphere. The method also includes injecting the halogen atmosphere treated carbon enriched alkaline coal ash particles derived from partial coal combustion into said flue gas *ahead of the particulate collection device*, thereby absorbing at least a portion of the mercury.” U.S. Patent No. 8,142,548 at 2:37–44 (emphasis added). Additionally, Plaintiffs’ Pl. PFF ¶ 441 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite U.S. Patent No. 8,142,548, which is not sponsored by sworn testimony. Accordingly, this evidence is an undisclosed and unqualified expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c). Furthermore, to the extent the cited evidence is offered to prove the claimed process of U.S. Patent No. 8,142,548, the evidence is inadmissible hearsay per Fed. R. Evid. 802.

442. Claim of U.S. Patent No. 8,142,548 reads as follows:

A method of treating combustion flue gas containing mercury, said method comprising the steps of: injecting a halogen into said flue gas; and injecting partially combusted, carbon enriched alkaline coal ash solid particles into said flue gas ahead of a particulate collection device, in order to adsorb at least a portion of the mercury.

C. Klingman Supp. Decl. ¶ 13 (Exhibit 63) (U.S. Patent No. 8,142,548), at claim 1.

Response: Undisputed that the ‘548 Patent contains the text of Claim 1.

443. Dr. Wilcox asserts that “the patent claims reference ‘coal combustion flue gas’ rather than just ‘coal combustion gas’ or ‘gases from coal combustion,’” and that “ignoring the descriptor ‘flue’ collapses any distinction between all of the coal combustion gases and the ‘coal combustion flue gas.’” Dkt. 82, Second Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 18.

Response: Undisputed.

444. The terms “flue gas,” “combustion gas,” and “coal combustion flue gas” are used interchangeably. Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 21.

Objection: Pl. PFF ¶ 444 is vague and ambiguous. Plaintiffs have not defined “flue gas,” “combustion gas,” or “coal combustion flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 444 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—paragraph 21 of the Third Fry Report—does not stand for the proposition asserted. Rather, the record shows that the report says, “‘flue gas’ is broadly used by individuals who work in or with coal-burning power plants and POSAs to refer specifically to the gas produced during the combustion of coal. Accordingly, a POSA would not understand there to be a distinction between ‘coal combustion gases’ and ‘coal

combustion flue gases.” D.I. # 80, Third Fry Report ¶ 21 (emphasis added).

445. Dr. Wilcox agreed that term “flue gas” (and even “injecting into flue gas”) should be construed the same in claim 1 as it is in 19, even though claim 1 uses the term “coal combustion flue gas” and claim 19 does not. Dkt. 82, Second Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 20.

Objection: Pl. PFF ¶ 445 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—paragraph 20 of the Second Wilcox Report—does not stand for the proposition asserted.

Rather, the record shows that the report says:

Dr. Fry’s proposed construction ignores the language of the claim. Certainly, the term “coal combustion flue gas” (see Claim 1, ‘692 Patent) suggests that the gas at issue is something less than all “coal combustion gas,” as to say otherwise would mean that the word “flue” is entirely superfluous. More significantly, Dr. Fry’s construction isolates the phrase from the full context of the claim language, which refers specifically to “injecting . . . into said flue gas” (Claim 1) or “injecting into the flue gas” (Claim 19). As explained below, I believe that this claim term does have a plain and ordinary meaning to a POSA, and that it is a term of art referring to one specific methodology among several for treating emissions from coal-fired power plants. Among other errors, by splitting this term of art into individual phrases, Dr. Fry undermines and contradicts the meaning of the complete phrase.

D.I. # 82, Second Wilcox Report ¶ 20.

446. Dr. Fry explained that “‘flue gas’ is broadly used by individuals who work in or with coal-burning power plants and POSAs to refer specifically to the gas produced during the combustion of coal. Accordingly, a POSA would not understand there to be a distinction between “coal combustion gases” and “coal combustion flue gases.” Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 21.

Response: Undisputed.

447. Dr. Wilcox concedes that “Zamansky simply teaches that flue gas results from combustion that is occurring in the combustion zone.” Dkt. 82, Second Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 42; *see also* Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 40-41.

Objection: Pl. PFF ¶ 447 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Additionally, Pl. PFF ¶ 447 incorrectly quotes Wilcox, and is duplicative for Pl. PFF ¶ 451.

Response: Disputed as unsupported. Plaintiffs' cited evidence—paragraph 40 of the Second Wilcox Report—does not stand for the proposition asserted.

Rather, the record shows that the report says, "*Zamansky simply teaches that flue gas results from the combustion that is occurring in the combustion zone*, which, as I discuss above, would not lead a POSA to define flue gas to include the gas in the combustion zone." D.I. # 82, Second Wilcox Report ¶ 42 (emphasis added).

448. U.S. Patent No. 6,206,685 ("Zamansky") states that "in another method according to the present invention, the concentration of nitrogen oxides in a combustion flue gas is decreased by providing a metal additive in the reburning zone." C. Klingman Decl. ¶ 32 (Exhibit 31) (Zamansky) at 5:13-17.

Response: Undisputed that the '685 Patent (Zamansky) contains the quoted statement; that does not make the statement admissible for all purposes, however.

449. Zamansky states that "combustion flue gas" can be "downstream of the reburning zone." C. Klingman Decl. ¶ 32 (Exhibit 31) (Zamansky) at 5:30-31.

Objection: Pl. PFF ¶ 449 is vague and ambiguous. Plaintiffs have not defined "combustion flue gas" or "the reburning zone," and it is not clear how the terms are being used in this asserted fact. Also, the term "flue gas" is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs' cited evidence—Zamansky at 5:30-31—does not stand for the proposition asserted. Rather, the record shows that the report says, "[o]ptionally, an N-agent and/or overfired air can be added to the *combustion flue gas downstream of the reburning zone* to further increase NO_x control." D.I. # 104, C. Klingman Decl.

Ex. 31, Zamansky, at 5:28–31 (emphasis added). Furthermore, to the extent that the ‘685 Patent contains the quoted statements, that does not make the statements admissible for all purposes.

450. Zamansky includes the following figures: Figs. 3, 5, 8, 11, 14; 1:14. C. Klingman Decl. ¶ 32 (Exhibit 31).

Objection: Pl. PFF ¶ 450 is hearsay if offered to establish the truth of any fact other than that the referenced figures were published in Zamansky.

Response: Undisputed that the ‘685 Patent (Zamansky) contains the referenced figures; that does not make the referenced figures admissible for all purposes.

451. Dr. Wilcox states that “Zamansky simply teaches that flue gas results from combustion that is occurring in the combustion zone.” Dkt. 82, Second Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 42; *see also* Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 40–41.

Objection: Pl. PFF ¶ 451 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites an expert’s opinion. Additionally, Pl. PFF ¶ 451 incorrectly quotes Wilcox. Further, Pl. PFF ¶ 451 is duplicative of Pl. PFF ¶ 447.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—paragraph 42 of the Second Wilcox Report—does not stand for the proposition asserted. Rather, the record shows that the report says, “*Zamansky simply teaches that flue gas results from the combustion that is occurring in the combustion zone*, which, as I discussed above, would not lead a POSA to define flue gas to include the gas in the combustion zone.” D.I. # 82, Second Wilcox Report ¶ 42 (emphasis added).

452. Douglas C. Comrie is named inventor for U.S. Patent No. 9,416,967. C. Klingman

Decl. ¶ 37 (Exhibit 36) (U.S. Patent No. 9,416,967).

Response: Undisputed.

453. Claim 1 of U.S. Patent 9,416,967 reads as follows:

A method for burning coal to reduce the amount of mercury released into the atmosphere, comprising: applying Sorbent components comprising a halogen compound and an aluminosilicate material onto coal; and delivering the coal with the Sorbent components applied into a coal burning furnace; and burning the coal with applied sorbent components in the furnace to produce heat energy, flue gas, and coal ash.

C. Klingman Decl. ¶ 37 (Exhibit 36) (U.S. Patent No. 9,416,967).

Response: Undisputed that the '967 Patent contains the text of Claim 1.

454. Douglas Comrie is the named inventor for U.S. Patent No. 8,501,128. C. Klingman Decl. ¶ 38 (Exhibit 37) (U.S. Patent No. 8,501,128).

Response: Undisputed.

455. Claim 1 of U.S. Patent No. 8,501,128 reads as follows:

A process for burning coal in the a furnace of a coal burning system to reduce the amount of mercury released from the system in to the environment, the process comprising adding a sorbent composition comprising a bromine compound onto the coal, where the bromine compound is added at a rate of 0.01-1% by weight, based on the weight of the coal being burned; delivering the coal with added bromine compound into the furnace; adding cement kiln dust into the furnace with the coal, wherein the cement kiln dust is added at a rate of 0.1- 10% by weight, based on the weight of the coal being burned; and combusting the coal in the furnace to produce combustion gases, ash, and heat energy.

C. Klingman Decl. ¶ 38 (Exhibit 37) (U.S. Patent No. 8,501,128).

Response: Undisputed that the '128 Patent contains the text of Claim 1.

456. U.S. Patents Nos. 9,416,967 and 8,501,128 share an identical specification. Compare C. Klingman Decl. ¶ 38 (Exhibit 37) (U.S. Patent No. 8,501,128) with C. Klingman Decl. ¶ 37 (Exhibit 36) (U.S. Patent No. 9,416,967).

Response: Undisputed.

457. Chem-Mod's website includes a technical glossary, where it defines "flue gas" and explains that "quite often, it refers to combustion exhaust gas produced at power plants." C. Klingman Decl. ¶ 39 (Exhibit 38) (<http://www.chem-mod.com/resources/glossary/>).

Response: Disputed as unsupported by admissible evidence. The cited

evidence is not properly authenticated or sponsored by sworn testimony.

Accordingly, to the extent this evidence is offered to prove the meaning of the term “flue gas,” this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

458. Dr. Wilcox admits that there is at least “some gases in some portion of a boiler [which] may sometimes be referred to as ‘flue gas’.” Dkt. 82, Second Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 41; Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 39, 74.

Objection: Pl. PFF ¶ 458 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument. Furthermore, Pl.’ PFF ¶ 458 includes a quotation that is taken out of context and incomplete.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—paragraph 41 of the Second Wilcox Report—does not stand for the proposition asserted. Rather, the record shows that the report says, “[t]hus, the question is not whether *some gases in some portion* of a boiler may sometimes be referred to as ‘flue gas,’ but whether—as Dr. Fry posits—the term ‘flue gas’ refers to *all gases throughout the boiler.*” D.I. # 82, Second Wilcox Report ¶ 41 (emphasis added).

459. Dr. Wilcox explains that “[n]ot everyone who works in or with coal-burning power plants is always precise in his or her use of the term ‘flue gas.’ Some use it more loosely, and when doing so often specify their intent to use the term in a very broad manner.” Dkt. 82, Second Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 18; *see also* Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 74.

Response: Undisputed.

460. Dr. Wilcox admits that “that some people refer on some occasions to some gas in some boilers as flue gas.” Dkt. 82, Second Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 86; *see also* Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 74.

Objection: Pl. PFF ¶ 460 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Furthermore, Pl.’ PFF ¶ 460 includes a quotation that is taken out of context and incomplete.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—paragraph 86 of the Second Wilcox Report—does not stand for the proposition asserted.

Rather, the record shows that the report says:

The statements from various defendant witnesses cited by Dr. Fry in each of his two First Reports do not change my opinion. Those statements suggest nothing more than that some people refer on some occasions to some gas in some boilers as flue gas. As I describe above, a furnace, or boiler, is a huge structure with multiple regions; even if there are occasional references to some gas in some boiler as “flue gas,” it does not mean that all combustion gas in the boiler of a coal-fired power plant is “flue gas,” or more specifically that the gas in the combustion zone is “flue gas,” or that this is the manner that the term is used in the ’692 Patent claims.

D.I. # 82, Second Wilcox Report ¶ 86.

461. Mr. Whittaker, the corporate representative designated under FED. R. CIV. P 30(b)(6), and a manager of Defendant Portage, agreed that “flue gas” is the “typical term” for the gases in the boiler resulting from combustion of the fuel such as coal.” Dkt. 73, Deposition Transcript of Gary Whittaker, dated December 6, 2018, at 192:21-193:9.

Objection: Pl. PFF ¶ 461 incorrectly quotes Whittaker. Additionally, Pl. PFF ¶ 461 is vague and ambiguous. Plaintiffs have not defined “flue gas,” and it is not clear how the term is being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the deposition transcript of Whittaker at 192:21–193:9—does not stand for the proposition asserted. Rather, the record shows that the transcript says,

Q. And from the combustion of that material, you are left over with certain gases and contaminants and ash and so forth, correct?

MR. GLANDORF: Objection, outside the scope.

THE WITNESS: Correct

Q. *And that material is flue gas, along with whatever is left of the air that didn't combust?*

MR. GLANDORF: Objection, calls for a legal conclusion. Compound.

Q. That is the typical term, right?

A. *Yes.*

D.I. # 74, Whittaker Dep. 192:24–193:9 (emphasis added). That Whitaker so answered does not make the testimony admissible for all purposes, however.

462. At his deposition on December 6, 2018, Mr. Whittaker testified as follows:

Q. And then you have the combustible material in it as well?

A. Correct.

Q. And from the combustion of that material, you are left over with certain gases and contaminants and ash and so forth, correct?

THE WITNESS: Correct.

Q. And that material is flue gas, along with whatever is left of the air that didn't combust?

MR. GLANDORF: Objection, calls for a legal conclusion. Compound.

Q. That is the typical term, right?

A. Yes

Dkt. 73, Deposition Transcript of Gary Whittaker, dated December 6, 2018, at 192:21–193:9.

Objection: Pl. PFF ¶ 462 is vague and ambiguous. Plaintiffs have not defined

“flue gas,” and it is not clear how the term is being used in this asserted fact.

Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Undisputed that Whittaker answered as quoted above. That

Whittaker so answered does not make the testimony admissible for all purposes, however.

463. Mr. Hujet, the corporate representative, and the operations officer of Defendant Weston plant, which is the same type of tangentially fired boiler as Columbia, confirmed that gas in the combustion zone is “common[ly]” referred to as flue gas and that it is present in the lower part of the furnace. Dkt. 96, Deposition Transcript of Kevin Hujet, dated December 11, 2018 at 40:1-25; 93:7-11, 171:15-19.

Objection: Pl. PFF ¶ 463 is vague and ambiguous. Plaintiffs have not defined “flue gas,” “the combustion zone,” or “the lower portion of the furnace,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 463 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the deposition transcript of Hujet at 40:1–25, 93:7–11, 171:15–19—does not support the stated proposition. Rather, the record shows that Hujet testified as follows:

Q. You’ve heard people use the phrase “flue gas” in the boiler before, though, correct?

A. I’ve -- yes.

Q. It’s a common use of the term?

A. It’s a common term.

279 Case D.I. # 59, Hujet Dep. 40:20–24. That Hujet so testified does not make the testimony admissible for all purposes, however.

464. At his deposition on December 11, 2018, Mr. Hujet testified as follows:

Q. I didn’t ask that question. I asked with MerSorb and S-Sorb, are there constituents [sic] components that would also have to be inside the boiler?

A. So MerSorb and S-Sorb would have been mixed in with the coal for the refined coal process and would be there at some point.

Q. Correct. So you have the MerSorb and S-Sorb or their constituent components. You have the --the portions of the coal that didn't combust. You have the fly ash and the bottom ash until it drops out all swirling around along with the combusting portion. And all that swirling gas is called flue gas in the industry, correct?

A. I don't really talk about that as being flue gas at that point. It's the combustion zone, I call it.

Q. But you've heard it called flue gas before?

A. I've heard the term "flue gas." I haven't really discussed that as being where it -

- you know, where -- what the mixture is inside the boiler.

Q. You've heard people use the phrase "flue gas" in the boiler before, though, correct?

A. I've -- yes.

Q. It's a common use of the term?

A. It's a common term.

Q. That's right.

Q. Right. But it would have to be flue gases below the nose, right, for that sentence to make sense?

A. Yes.

Q. Do you agree there's at least some flue gas below the nose arch? It's not the only thing in there, but there's at least some flue gas below the nose arch, right?

A. Yes

Dkt. 96, Deposition Transcript of Kevin Hujet, dated December 11, 2018 at 40:1-25; 93:7-11, 171:15-19.

Objection: Pl. PFF ¶ 464 is vague and ambiguous. Plaintiffs have not defined

"flue gas," "the fly ash," "the bottom ash" or "the boiler," and it is not clear how

the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 463 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Undisputed to the extent the transcript reads as follows, which includes objections from Defendants’ attorney.

Q. I didn’t ask that question. I asked with MerSorb and S-Sorb, are there constituents [sic] components that would also have to be inside the boiler?

MR. MARK: Objection, scope. You may answer.

A. So MerSorb and S-Sorb would have been mixed in with the coal for the refined coal process and would be there at some point.

Q. Correct. So you have the MerSorb and S-Sorb or their constituent components. You have the -- the portions of the coal that didn’t combust. You have the fly ash and the bottom ash until it drops out all swirling around along with the combusting portion. And all that swirling gas is called flue gas in the industry, correct?

MR. MARK: Objection. Foundation, form. You may answer.

A. I don’t really talk about that as being flue gas at that point. It’s the combustion zone, I call it.

Q. But you’ve heard it called flue gas before?

A. I’ve heard the term “flue gas.” I haven’t really discussed that as being where it -- you know, where -- what the mixture is inside the boiler.

Q. You’ve heard people use the phrase “flue gas” in the boiler before, though, correct?

A. I’ve -- yes.

Q. It’s a common use of the term?

A. It’s a common term.

Q. Right. But it would have to be flue gases below the nose, right, for that sentence to make sense?

MR. MARK: Objection, form. You may answer.

A. Yes.

Q. Do you agree there’s at least some flue gas below the nose arch? It’s not the only thing in there, but there’s at least some flue gas below the nose arch, right?

A. Yes.

279 Case D.I. # 59, Hujet Dep. 39:20–40:25; 93:7–11, 171:15–19. That Hujet so answered does not make the testimony admissible for all purposes, however.

465. Mr. Comrie, the inventor of the accused Chem-Mod Process, agreed there is gas in the flame zone itself and stated that while he prefers to call this “combustion gas,” he agreed Babcock & Wilcox refers to it as “flue gas,” and agreed that Babcock & Wilcox are industry experts in boiler technology. *See, e.g.*, Dkt. 63, Deposition Transcript of Douglas Comrie, dated February 22, 2019, at 206:7-22; 276:5-13; 291:1-292:22; C. Klingman Decl. ¶ 40 (Exhibit 39) (Comrie Exhibit 11); C. Klingman Decl. ¶ 41 (Exhibit 40) (CHEM-MOD_00149312), at Col. 7, lines 48-52 (“The combustion process begins in the burner zone 24 of the boiler 12’s furnace 26, releasing heat and creating hot flue gas 28 which is conveyed upwardly to the upper portion 30 of the boiler”).

Objection: Pl.’ PFF ¶ 465 is vague and ambiguous. Plaintiffs have not defined “the accused Chem-Mod Process” or “the flame zone,” and it is not clear how the terms are being used in this asserted fact. Additionally, Pl. PFF ¶ 465 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Sec. I.B.6, because it recites Plaintiffs’ argument, rather than a factual proposition.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the deposition transcript of Comrie at 206:7–22, 276:5–13, 291:1–292:22—does not support the stated proposition. Rather, the record shows that Comrie testified that “[a]t one point in time [Babcock & Wilcox] were the largest boiler manufacturer in the world. They made boilers for nuclear submarines, nuclear aircraft carriers” and “coal fire power plants.” D.I. # 63, Comrie Dep. 206:15–19. Additionally, this assertion is scientific, technical, and specialized in nature and thus constitutes expert opinion per Fed. R. Evid. 702; yet, the opinion was not timely disclosed by Plaintiffs pursuant to the Preliminary Pretrial Conference Order. Accordingly, this assertion constitutes untimely

disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702.

466. At his deposition on February 22, 2019, Mr. Comrie testified as follows:

Q. What does B&W refer to?

MR. EVALL: Objection; lack of foundation. Go ahead.

THE WITNESS: Babcock & Wilcox, out of Ohio. BY MR. FARNEY:

Q. Sorry?

A. Out of Ohio.

Q. And who is Babcock & Wilcox?

A. At one point in time they were the largest boiler manufacturer in the world. They made boilers for nuclear submarines, nuclear aircraft carriers.

Q. And coal fire --

A. And coal fire power plants.

Q. Which is probably more germane to our discussion. Correct?

A. Yes, I hope so.

Q. And it's your opinion that in doing so Babcock Wilcox was sloppy. Correct?

A. That is my opinion. I note the -- I know the authored of the patent.

Q. And you consider him to be sloppy?

A. I wouldn't be that mean to him. But he's a young engineer, he comes from India. So he probably doesn't have the best handle of descriptive English. I'm trying to be kind. He's a nice guy.

Q. Well, when it says it's 20 feet above the fireball, if we look back at Exhibit 12 as an example, would you expect that 20 feet above fireball would still be somewhere below the nose arch?

BY MR. FARNEY:

Q. Well, it's your invention?

THE WITNESS: That's not my furnace.

MR. FARNEY: I understand that's not your furnace and not your description of gas, apparently.

BY MR. FARNEY:

Q. But this is your description. And I'm asking you: When it says additions made through a lance positioned four feet from the inside of the furnace and 20 feet above the fireball, would it be your expectation that the lance is positioned below the nose arch in that facility?

A. Yes.

Q. And it says, the temperature of the flue gas at the point of injection is about 2,400 degrees to 2,600 degrees Fahrenheit and measured by a temperature sensor. Do you see that?

A. Yes, I do.

Q. So at least in this example, you're referring to the gases below the nose arch as flue gases. Correct?

A. Evidently.

Q. So at least on occasion you, yourself, have referred --

A. Sloppy.

Q. So you would consider that a sloppy reference?

A. Yes.

Q. But it is a reference to combustion gases in the boiler as flue gas. Correct?

A. Sure appears that way.

Q. Okay. Do you think others in the industry are sometimes similarly sloppy in these flue gas referred to combustion gas, as you call it?

THE WITNESS: It appears so.

Dkt. 63, Deposition Transcript of Douglas Comrie, dated February 22, 2019, at 206:7-22; 276:5- 13; 291:1-292:22.

Objection: Pl. PFF ¶ 466 is vague and ambiguous. Plaintiffs have not defined “flue gas” or “the fireball,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation.

D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 466 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not correctly identify with specificity where in the record the evidence is located.

Response: Undisputed to the extent the transcript reads as follows, which includes objections from Defendants’ attorney.

Q. Well, when it says it’s 20 feet above the fireball, if we look back at Exhibit 12 as an example, would you expect that 20 feet above fireball would still be somewhere below the nose arch?

MR. EVALL: Going to objection to form. I’m going to object to -- calls for speculation and lack of foundation.

BY MR. FARNEY:

Q. Well, it’s your invention?

MR. EVALL: Yeah, but you are referring to Exhibit 12. That he was my objection.

MR. FARNEY: I’m asking --

THE WITNESS: That’s not my furnace.

MR. FARNEY: I understand that’s not your furnace and not your description of gas, apparently.

BY MR. FARNEY:

Q. But this is your description. And I'm asking you: When it says additions made through a lance positioned four feet from the inside of the furnace and 20 feet above the fireball, would it be your expectation that the lance is positioned below the nose arch in that facility?

A. Yes.

Q. And it says, the temperature of the flue gas at the point of injection is about 2,400 degrees to 2,600 degrees Fahrenheit and measured by a temperature sensor. Do you see that?

A. Yes, I do.

Q. So at least in this example, you're referring to the gases below the nose arch as flue gases. Correct?

A. Evidently.

Q. So at least on occasion you, yourself, have referred --

A. Sloppy.

Q. So you would consider that a sloppy reference?

A. Yes.

Q. But it is a reference to combustion gases in the boiler as flue gas. Correct?

A. Sure appears that way.

Q. Okay. Do you think others in the industry are sometimes similarly sloppy in these flue gas referred to combustion gas, as you call it?

MR. EVALL: Objection; lack of foundation, calls for speculation.

THE WITNESS: It appears so.

D.I. # 63, Comrie Dep. 291:1–292:22. That Comrie so answered does not make the testimony admissible for all purposes, however.

467. Dkt. 63, Deposition Transcript of Douglas Comrie, dated February 22, 2019, at 206:7-22; 276:5-13; 291:1-292:22.

Response: Plaintiffs appear to have inadvertently numbered this citation as a new PFF, but it appears to have been intended as a citation for Pl. PFF ¶ 466; therefore, PFF ¶ 467 should be considered omitted.

[Paragraphs 468–800 have been omitted.]

801. Columbia Energy Center Unit 1 is owned as tenants-in-common by WPL, WPS and MGE. Dkt. 54, Defendants' Answer to Plaintiffs' Second Amended Complaint, pg. 7 ¶ 21.

Response: Undisputed.

802. Dr. Wilcox testified:

Q: So my first question is: If the calcium bromide that comes from the MerSorb, if the court were to conclude that the way that's introduced to the furnace is injecting in the flue gas and all of the calcium bromide becomes available to

decompose, then if I understand you, you're saying you would agree that there is infringement because there's nothing else that Columbia plant would not meet in the claim; is that right, Claim 1?

A: You said if all of the -- if all of the precursor went through bromine, and that's the question; I mean, that's the question.

Q: Was available -- A: But If it --

Q: --unless it was available to decompose.

A: Yeah, if it was available to decompose then the answer is yes.

Dkt. 74, Deposition of Dr. Jennifer Wilcox, pg. at 186:10-25--187:1-7 (Counsel objections omitted).

Objection: Pl. PFF ¶ 802 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites an expert's opinion.

Response: Undisputed to the extent the testimony reads as follows, which includes objections from Defendants' attorney.

Q. So my first question is: If the calcium bromide that comes from the MerSorb, if the court were to conclude that the way that's introduced to the furnace is injecting in the flue gas and all of the calcium bromide becomes available to decompose, then if I understand you, you're saying you would agree that there is infringement because there's nothing else that Columbia plant would not meet in the claim; is that right, Claim 1?

MR. EVALL: Objection, incomplete hypothetical. You can answer.

A. You said if all of the -- if all of the precursor went through bromine, and that's the question; I mean, that's the question.

Q. Was available --

A But If it --

Q. -- unless it was available to decompose.

A. Yeah, if it was available to decompose then the answer is yes.

D.I. # 74, Wilcox Dep. 186:10 -- 187:7. That Wilcox so testified does not make the testimony admissible for all purposes, however.

803. Dr. Wilcox testified:

Q: --in that scenario, again assuming the court agrees with plaintiffs on flue gas, your position about some of it perhaps being in the pores, in the end of the day you would agree does not affect that there would still be infringement, correct?

A: Some of the bromine we can't deny will ultimately result in mercury oxidation. So if we go with all -- you know, if we agree -- hypothetically, no matter how uncomfortable I am to do it -- if we agree with all of the claims as outlined by the constructions as outlined by the plaintiffs, there's nothing else, yeah, that would prevent calling it infringement.

Q: So there would be infringement if plaintiffs -- A: Right.

Q: -- claim constructions were adopted? A: Right, right.

Q: So we talked over each other. So there would be infringement in your opinion if plaintiffs' claim constructions were adopted?

A: Hypothetically, if I agreed with all of the loose claims and their constructions, then yes.

Dkt. 74, Deposition of Dr. Jennifer Wilcox, pg. at 192:9-24-193:1-15 (Counsel objections omitted).

Objection: Pl. PFF ¶ 803 violates the Court's Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not correctly identify with specificity where in the record the evidence is located, and Sec. I.B.6, because it simply recites an expert's opinion. Additionally, Pl. PFF ¶ 803 is duplicative of Pl. PFF ¶ 153.

Response: Undisputed to the extent the transcript reads as follows, which includes objections from Defendants' attorney.

Q: -- in that scenario, again assuming the court agrees with plaintiffs on flue gas, your position about some of it perhaps being in the pores, in the end of the day you would agree does not affect that there would still be infringement, correct?

MR. EVALL: Objection to form, incomplete hypothetical.

A: Some of the bromine we can't deny will ultimately result in mercury oxidation. So if we go with all -- you know, if we agree -- hypothetically, no matter how uncomfortable I am to do it -- if we agree with all of the claims as outlined by the constructions as outlined by the plaintiffs, there's nothing else, yeah, that would prevent calling it infringement.

Q: So there would be infringement if plaintiffs --

A: Right.

Q: -- claim constructions were adopted?

A: Right, right.

MR. EVALL: Objection to form and lack of foundation.

Q. So we talked over each other. So there would be infringement in your opinion if plaintiffs' claim constructions were adopted?

MR. EVALL: Objection to form, lack of foundation, and incomplete hypothetical.

A. Hypothetically, if I agreed with all of the loose claims and their constructions, then, yes.

D.I. # 74, Wilcox Dep. 192:9 – 193:15. That Wilcox so testified does not make the testimony admissible for all purposes, however.

804. Plaintiffs have cited to evidence supporting that each element of the process claimed in claim 1, and in claim 19, are performed by Columbia Unit 1. Dkt. 78-26 (Plaintiffs' Infringement Contentions) & Dkt. 78 First Expert Report of Dr. Andrew Fry, ¶¶ 22, 149-181, 195-288 and 287-327.

Objection: Pl. PFF ¶ 804 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs' argument, rather than a factual assertion.

Response: Disputed as unsupported and contrary to the evidence. The evidence that Plaintiffs cite does not support that each element of the process in claims 1 and 19 are performed by Columbia Unit 1. D.I. # 82, Second Wilcox Report ¶¶ 83–96, D.I. # 113, Def. PFF ¶¶ 279–314.

805. Defendants have cited the Vassilev reference as anticipatory prior art under 35 U.S.C. § 102. C. Klingman Decl. ¶ 43 (Exhibit 42) (Defendants' Invalidity Contentions); Dkt. 81, First Expert Report of Dr. Jennifer Wilcox, ¶ 190.

Response: Undisputed. To clarify, Defendants also cite Vassilev for obviousness. D.I. # 81, First Wilcox Report ¶¶ 234, 236.

806. Vassilev is a report of a study done on the occurrence of chlorine and bromine in some Bulgarian coals, which, like other coals, contain traces of bromine and chlorine. C. Klingman Decl. ¶ 43 (Exhibit 42) (Vassilev).

Objection: Pl. PFF ¶ 806 is vague and ambiguous. Plaintiffs have not defined "traces," and it is not clear how the term is being used in this asserted fact.

Response: Undisputed.

807. Dr. Wilcox testified:

Q: Do you understand that plaintiffs' position is that the thermolabile molecular bromine precursor that must be injected into the flue gas as required by the claim must be something distinct from what comes from the coal itself?

A: I hear what you're saying, the plaintiffs' perspective, and there's nothing really for me to agree on. I'm hearing what you're saying, and I interpret it differently.

Q: I'm not asking whether you agree. I'm asking do you understand that's plaintiff's position?

A: I do.

Q: And then my question is: If a court agrees with plaintiffs that this is the correct reading of the claim, would Vassilev, in your opinion, still anticipate the claim?

A: In isolation, no, but you could also, again, render obvious if combined with other reports that there's an addition of the calcium bromide thermolabile molecular bromine precursor. So you can combine this with other references that do have those additions, like Julien or some of the others that I have referenced in my report.

Q: But Vassilev itself under the hypothetical I gave you would not anticipate the claim by itself, correct?

A: Under the hypothetical interpretation from the plaintiffs' perspective that you have given, yes.

Q: Would Vassilev by itself render such a claim obvious? A: Under the interpretation from the plaintiffs' perspective? Q: Yes.

A: In isolation?

Q: Yes

A: I think that's difficult to say because what you have said is that it has to be added separately. So it doesn't render it obvious in that case.

Dkt. 74, Deposition of Dr. Jennifer Wilcox, pg. at 259:11-261:6 (Counsel objections omitted).

Response: Undisputed to the extent the transcript reads as follows, which includes objections from Defendants' attorney.

Q. Do you understand that plaintiffs' position is that the thermolabile molecular bromine precursor that must be injected into the flue gas as required by the claim must be something distinct from what comes from the coal itself?

MR. EVALL: Objection to form, incomplete hypothetical.

A. I hear what you're saying, the plaintiffs' perspective, and there's nothing really for me to agree on. I'm hearing what you're saying, and I interpret it differently.

Q. I'm not asking whether you agree. I'm asking do you understand that's plaintiffs' position?

A. I do.

MR. EVALL: Objection to form.

Q. And then my question is: If a court agrees with plaintiffs that that is the correct reading of the claim, would Vassilev, in your opinion, still anticipate the claim?

MR. EVALL: Incomplete hypothetical.

A. In isolation, no, but you could also, again, render obvious if combined with other reports that there's an addition of the calcium bromide thermolabile molecular precursor. So you can combine this with other references that do have those additions, like Julien or some of the others that I have referenced in my report.

Q. But Vassilev itself under the hypothetical I gave you would not anticipate the claim by itself, correct?

A. Under the hypothetical interpretation from the plaintiffs' perspective that you have given, yes.

Q. Would Vassilev by itself render such a claim obvious?

A. Under the interpretation from the plaintiffs' perspective?

Q. Yes.

A. In isolation?

Q. Yes.

A. I think that's difficult to say because what you have said is that it has to be added separately. So it doesn't render it obvious in that case.

D.I. # 74, Wilcox Dep. 259:11–261:6. That Wilcox so answered does not make the testimony admissible for all purposes, however.

808. Defendants have alleged affirmative defenses of express license, implied/oral license, equitable estoppel, res judicata, and lack of subject matter jurisdiction. Dkt. 54, Defendants' Answer to Plaintiffs' Second Amended Complaint, ¶¶ 161-187.

Objection: Pl. PFF ¶ 808 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Defendants' argument.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs' cited evidence—paragraphs 161–187 of Defendants' Answer to the Second Amended Complaint—does not support the asserted fact that Defendants have alleged an affirmative defense of “res judicata.” Moreover, the record shows that Defendants have alleged several defenses not listed by Plaintiffs. D.I. # 54, Answer to SAC ¶¶ 161–187.

809. On November 5, 2018, Defendants served Plaintiffs with their Objections and Responses to Plaintiffs' First Set of Interrogatories. C. Klingman Decl. ¶ 44 (Exhibit 43).

Response: Undisputed.

810. On April 1, 2019, Defendants served Plaintiffs with their Supplemental Objections and Responses to Plaintiffs' First Set of Interrogatories. C. Klingman Decl. ¶ 45 (Exhibit 44).

Response: Undisputed.

811. Defendant WPL has asserted, as an affirmative defense, that Nalco expressly licensed Defendant WPL to practice the claims of the '692 Patent at Columbia Energy Center Unit 1. Dkt. 54, Defendants' Answer to Plaintiffs' Second Amended Complaint, ¶¶ 180-187.

Response: Undisputed.

812. Defendant WPL states in its supplemental interrogatory response that Nalco "directly licensed WPL to practice the claims of the '692 Patent at Columbia Energy Center Unit 1." C. Klingman Decl. ¶ 45 (Exhibit 44), pg. 35.

Objection: Pl. PFF ¶ 812 misstates the evidence to the extent that the text in the PFF is altered from the original document.

Response: Undisputed that Defendants state in their supplemental interrogatory responses that "Nalco and its affiliates have directly licensed WPL to practice the '692 Patent at the Columbia Energy Center." Klingman Decl. Ex. 44 at 22.

813. In support of its express license defense, Defendant WPL states in its supplemental interrogatory response that Nalco has "manifested [its] position that the '692 Patent does not cover the manufacture, sale, offer for sale, or use of Refined Coal." C. Klingman Decl. ¶ 45 (Exhibit 44), pgs. 10, 32 & 34.

Response: Undisputed.

814. MerControl 7895 is Nalco's tradename for the calcium bromide solution it sells to power plants for the purpose of carrying out the process claimed in the '692 Patent. Dkt. 67, Deposition of John Meier, February 12, 2019, pg. 33:6-22; 87:7-25–88:1-23 .

Response: Undisputed.

815. On January 1, 2011, Nalco and Alliant, WPL's parent company, entered into an agreement (the "Nalco/Alliant General Agreement). C. Klingman Decl. ¶ 46 (Exhibit 45) (NALC00467364–397).

Objection: Pl. PFF ¶ 813 violates the Court's Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation is not correct.

Response: Disputed in part as unsupported. Plaintiffs' cited evidence—the

Nalco/Alliant General Agreement—does not support the asserted fact that the Alliant entity that is party to the Nalco/Alliant General Agreement is “WPL’s parent company.” Undisputed that on or around January 1, 2011, Nalco and Alliant Energy Corporate Services, Inc. entered into the Nalco/Alliant General Agreement. D.I. # 99, Klingman Decl. Ex. 45.

816. On July 16, 2014, Nalco and Alliant entered into a first amendment to the Nalco/Alliant General Agreement (“First Amendment”). C. Klingman Decl. ¶ 47 (Exhibit 46) (NALC00329445–453).

Response: Undisputed that on or around July 16, 2014, Nalco and Alliant Energy Corporate Services, Inc. entered into the First Amendment. D.I. # 99, Klingman Decl. Ex. 46 at NALC00329445–453.

817.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

818. On January 1, 2015, Nalco and Alliant entered into a second amendment to the General Agreement (“Second Amendment”). C. Klingman Decl. ¶ 48 (Exhibit 47) (NALC00653716–20).

Response: Undisputed that on or around January 1, 2015, Nalco and Alliant Energy Corporate Services, Inc. entered into the Second Amendment. D.I. # 99, Klingman Decl. Ex. 47 at NALC00653716–20.

819.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

820. In January 2017, the Nalco and Alliant negotiated a third amendment to the General Agreement (“Negotiated Third Amendment”). C. Klingman Decl. ¶ 49 (Exhibit 48) (NALC00467398).

Objection: Pl. PFF ¶ 820 is vague and ambiguous. Plaintiffs have not defined “negotiated,” and it is not clear how the term is being used in this asserted fact.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the Negotiated Third Amendment at NALC00467398—does not support the asserted fact that Nalco and Alliant “negotiated” the Negotiated Third Amendment.

821.

[REDACTED]

822. The Negotiated Third Amendment was never entered by the parties. C. Klingman Decl. ¶¶ 50 (Exhibit 49) (WPL00025317–311) & (WPL00025300–303).

Objection: Pl. PFF ¶ 822 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not correctly identify with specificity where in the record the evidence is located. Additionally, Pl. PFF ¶ 822 is vague and ambiguous. Plaintiffs have not defined “entered by the parties,” and it is not clear how the term is being used in this asserted fact.

Response: Disputed as unsupported and contrary to the evidence. To clarify, WPL00025300–303 and WPL00025310–18 appear as Klingman Decl. Ex. 49, not Ex. 48. Additionally, Plaintiffs’ cited evidence—a series of emails and the Third Negotiated Agreement—does not support the asserted fact that the Negotiated Third Amendment was “never entered by the parties.” The record shows that Nalco executed the Negotiated Third Amendment on or around January 16, 2017; that the license provisions of the Nalco/Alliant General Agreement, the First

Amendment, and the Second Amendment remained in force beyond July 15, 2017; and that the parties continued to perform under these agreements beyond July 15, 2017. D.I. # 99, Klingman Decl. Ex. 49; D.I. # 95, Mark Decl. (May 14, 2019) Ex. 196, Nalco Invoice dated Jan. 6, 2015, at WPL_0006334; D.I. # 95, Mark Decl. (May 14, 2019) Ex. 197, Email Chain dated July 1, 2016, at NALC00592126–27; D.I. # 95, Mark Decl. (May 14, 2019) Ex. 198, Nalco Invoice dated Jan. 31, 2017, at NALC00468709; D.I. # 95, Mark Decl. (May 14, 2019) Ex. 199, Nalco Invoice dated May 30, 2017, at NALC00468713; D.I. # 95, Mark Decl. (May 14, 2019) Ex. 200, Nalco Invoice dated Jan. 31, 2018, at NALC00468227; D.I. # 95, Mark Decl. (May 14, 2019) Ex. 201, Nalco Invoice dated Oct. 30, 2018, at NALC00468717; D.I. # 95, Mark Decl. (May 14, 2019) Ex. 202, Nalco Invoice dated Nov. 30, 2018, at NALC00468719.

823.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

824.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

825. MerControl 7895 is Nalco’s calcium bromide technology for mercury emissions

Response: Undisputed.

826. [REDACTED]

Response: Undisputed.

[illegible]

[REDACTED]

829. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

830. To make Refined Coal, Portage Fuels applies calcium bromide to the untreated

coal in the crusher house. Dkt. 73, Deposition of Gary Whittaker, December 6, 2018, pg. 24:21-25.

Objection: Pl. PFF ¶ 830 is duplicative of Pl. PFF ¶¶ 14, 142. Additionally, Pl. PFF ¶ 830 is vague and ambiguous. Plaintiffs have not defined “applies,” and it is not clear how the term is being used in this asserted fact.

Response: Disputed in part. Portage does not currently apply calcium bromide to untreated coal because Portage assigned its Refined Coal facility, and its rights and obligations under the Feedstock Purchase Agreement and the Refined Coal Supply Agreement, to non-party Erie Fuels Company, LLC. D.I. # 113, Def. PFF ¶ 33 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 7, Portage Assignment and Assumption Agreement (July 31, 2018), at PORTAGE_00001029.

831. MerControl 7895 is applied at the feeders that are between the coal bunkers and the pulverizers in the plant. C. Klingman Decl. ¶ 47 (Exhibit 46) (NALC00329453); Dkt. 66, Deposition of Jerald Lokenvitz, December 5, 2018, pg. 229:14–23 & 240:13-25 – 241:1-13.

Objection: Pl. PFF ¶ 831 is vague and ambiguous. Plaintiffs have not defined “applied,” “the feeders,” “the coal bunkers,” “the pulverizers,” or “the plant,” and it is not clear how the terms are being used in this asserted fact.

Response: Disputed in part as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the First Amendment at NALC00329453 and the deposition transcript of Lokenvitz at 229:14–23 and 240:13–241:13—does not support the asserted fact that MerControl 7895 is applied in all cases “at the feeders that are between the coal bunkers and the pulverizers in the plant.” Moreover, the record shows that MerControl 7895 may be applied in at least some cases in the crusher house, among other places. D.I. # 132, Meier Dep. (Apr. 26,

2019) 133:2–5. Undisputed that MerControl 7895 has been applied at the feeders between the coal bunkers and the pulverizers at Columbia Energy Center Unit 1.

832. The MerControl 7895 is applied to the coal as it is fed by the feeder from the bunker to the pulverizer, which pulverizes the mixture of coal and MerControl 7895, before injecting it into the combustion zone of the furnace of Columbia Energy Center Unit 1. C. Klingman Decl. ¶ 47 (Exhibit 46) (NALC00329453); Dkt. 66, Deposition of Jerald Lokenvitz, December 5, 2018, pg. 229:14–23 & 240:13-25 – 241:1-13; C. Klingman Supp. Decl. ¶ 15 (Exhibit 65) Meier Deposition, Exhibit 10.

Objection: Pl. PFF ¶ 832 is vague and ambiguous. Plaintiffs have not defined “applied,” “the feeder,” “the bunker,” “the pulverizer,” “injecting,” or “the combustion zone of the furnace,” and it is not clear how the terms are being used in this asserted fact. Also, the term “injecting” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Additionally, Pl. PFF ¶ 832 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Sec. I.B.6, because it recites Plaintiffs’ argument.

Response: Disputed in part as unsupported. Plaintiffs’ cited evidence—the First Amendment at NALC00329453, the deposition transcript of Lokenvitz at 229:14–23 and 240:13-241:13, and the Nalco Mercury Control Offering presentation—does not support the asserted fact that coal and MerControl 7895 exist as a “mixture.” Undisputed that at Columbia Energy Center Unit 1, MerControl 7895 has been applied to coal while the coal was being fed by the feeders from the bunker to the pulverizers; that the pulverizers at Columbia Energy Center Unit 1 have been used to pulverize coal that has had MerControl 7895 applied to it; and that coal that has had MerControl 7895 applied to it has

been introduced into the combustion zone of the furnace of Columbia Energy Center Unit 1.

833. Defendant WPL has never measured nor provided to Nalco, flow meter data (or any data) reflective of the calcium bromide that is being used to generate Refined Coal. Dkt. 66, Deposition of Jerald Lokenvitz, December 5, 2018, pg. 240:13-25 – 241:1-13.

Objection: Pl. PFF ¶ 833 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the deposition transcript of Lokenvitz at 240:13–241:13—does not support the asserted fact that WPL has never measured nor provided to Nalco data reflective of the calcium bromide that is being used to generate Refined Coal. Moreover, the record shows that WPL provided Nalco notice of its use of Refined Coal. D.I. # 113, Def. PFF ¶¶ 865–867 (D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 165, Dec. 1, 2016 and January 3, 2017 emails, at NALC00592123; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 166, Apr. 27, 2017 email, at NALC00592100; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 167, Jan. 30, 2017 email, at NALC00592101–102).

834. Nalco has never invoiced Defendant WPL for the calcium bromide that is being used to generate Refined Coal. Dkt. 66, Deposition of Jerald Lokenvitz, December 5, 2018, pg. 240:13-25 – 241:1-13.

Response: Undisputed.

835. Columbia Unit 1 installed a flow meter at the coal feeders. Dkt. 66, Deposition of Jerald Lokenvitz, December 5, 2018, pg. 229:14–23 & 240:13-25 – 241:1-13.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the deposition transcript of Lokenvitz at 229:14–23 and 240:13-241:13—does not support the asserted fact that “Columbia Unit 1 installed a flow meter at the coal

feeders.”

836. Columbia Unit 1 does not have a flow meter at its crusher house. Dkt. 66, Deposition of Jerald Lokenvitz, December 5, 2018, pg. 229:14–23 & 240:13–25 – 241:1–13.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the deposition transcript of Lokenvitz at 229:14–23 and 240:13–241:13—does not support the asserted fact that Columbia Unit 1 does not have a flow meter at its crusher house. Lokenvitz discusses that WPL provided Nalco with “how much [they] use per hour of calcium bromide fed through the feeders in Unit 1,” and that there is a flow meter at the coal feeders, but he does not testify to whether there is a flow meter anywhere else. D.I. # 66, Lokenvitz Dep. 229:14–23; 240:13–241:13.

837. All Defendant WPL’s invoices to Nalco have only reflected the amount of calcium bromide being measured at the flow meters, and not at the crusher house. Dkt. 66, Deposition of Jerald Lokenvitz, December 5, 2018, pg. 229:14–23 & 240:13–25 – 241:1–13 & 268:9–25–269:1–13.

Objection: Pl. PFF ¶ 837 is vague and ambiguous. Plaintiffs have not defined “the flow meters,” and it is not clear how the term is being used in this asserted fact.

Response: Undisputed that all of WPL’s invoices to Nalco have reflected amounts of calcium bromide measured using flow meters that are not inside the crusher house.

838. In their Supplemental Responses to Plaintiffs’ First Set of Interrogatories, Defendants state: “Defendants assert that since at least [2011], Chem-Mod, AJG Coal, Inc., and other Chem-Mod affiliates have enjoyed oral and/or implied licenses to the ’692 Patent based on their collaboration with Nalco – as reflected in written and oral agreements, marketing materials, presentations, and discussions – to identify potential licensees of the Chem-Mod Solution and potential purchasers of refined coal treated using the Chem-Mod Solution. Based upon their participation in this collaboration, Nalco granted Chem-Mod and its affiliates and[sic] oral and/or implied licenses to the ’692 Patent, which were then transferred to Chem-Mod’s customers, licensees, and users, including Portage. Defendants therefore cannot be liable for patent

infringement.” Dkt. 54, Defendants’ Answer to Plaintiffs’ Second Amended Complaint, ¶¶ 180-187; C. Klingman Decl. ¶ 45 (Exhibit 44), pgs. 24 & 33.

Response: Undisputed.

839. Defendants provide their reasons why they believe they “have express, implied, and/or oral licenses to practice the ’692 Patent” in their Supplemental Interrogatory Responses, which include their initial responses to Plaintiffs’ First Set of Interrogatories. C. Klingman Decl. ¶ 45 (Exhibit 44), pgs. 33-35.

Objection: Pl. PFF ¶ 839 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Defendants’ argument.

Response: Undisputed.

840. During late 2011 and 2012, Nalco and Chem-Mod engaged in discussions about a possible joint venture that would include use of the Chem-Mod technology. Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 118:7-119:4; 120:10-20; 122:6-11; 176:-2-9; 176:20-177:7; Dkt. 64, Deposition of David Johnson, February 26, 2019, pg. 49:7-20; 63:6-64:2; 136:4-14; 237:5-20; 238:24-239:3.

Response: Undisputed.

841. Defendants have asserted that Chem-Mod’s CEO has claimed that Nalco assured her that Nalco would not assert the ’692 Patent against Chem-Mod. Dkt. 54, Defendants’ Answer to Plaintiffs’ Second Amended Complaint, ¶¶ 180-187; C. Klingman Decl. ¶ 45 (Exhibit 44), pgs. 24 & 33.

Objection: Pl. PFF ¶ 841 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Defendants’ argument, rather than a factual assertion.

Response: Undisputed. To clarify, Batanian is the president of Chem-Mod.

D.I. # 71, Batanian Dep. 9:3–21.

842. Chem-Mod’s CEO testified in her deposition: “I don’t remember the words.” Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 178:22.

Objection: Pl. PFF ¶ 842 is vague and ambiguous. Plaintiffs have not defined “the words,” and it is not clear how the term is being used in this asserted fact.

Response: Undisputed. To clarify, Batanian is the president of Chem-Mod.

D.I. # 71, Batanian Dep. 9:3–21.

843. Chem-Mod’s CEO testified in her deposition: “I don’t know. I don’t – I don’t recall the words.” Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 179:14-25.

Objection: Pl. PFF ¶ 843 is vague and ambiguous. Plaintiffs have not defined “the words,” and it is not clear how the term is being used in this asserted fact.

Response: Undisputed. To clarify, Batanian is the president of Chem-Mod.

D.I. # 71, Batanian Dep. 9:3–21.

844. Chem-Mod’s CEO testified in her deposition: “And I don’t recall – you know, I’m giving you a gist of a conversation, I don’t recall all of the words.” Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 181:9-11.

Objection: Pl. PFF ¶ 844 is vague and ambiguous. Plaintiffs have not defined “the words” or identified the relevant conversation and it is not clear how the terms are being used in this asserted fact. Additionally, Pl. PFF ¶ 844 includes testimony that is taken out of context and incomplete.

Response: Undisputed. To clarify, Batanian is the president of Chem-Mod.

D.I. # 71, Batanian Dep. 9:3–21.

845. Chem-Mod’s CEO testified in her deposition: “Q: Is this correct to say that Mr. Johnson never provided this statement to you in writing that Nalco was going to give Chem-Mod a royalty free license to do Nalco patents? A: yes, I would say that’s fair to say.” Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 187:4-9.

Response: Undisputed. To clarify, Batanian is the president of Chem-Mod.

D.I. # 71, Batanian Dep. 9:3–21.

846. Chem-Mod’s CEO testified in her deposition: “Q: Do you think there ever would have been a written agreement between Nalco and Chem-Mod giving Chem-Mod a license on the Oehr patent? A: I don’t recall one . . . I don’t remember negotiating one, I don’t remember talking about one, you know – I don’t – there’s nothing that I know of.” Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 205:8-11.

Response: Undisputed. To clarify, Batanian is the president of Chem-Mod.

D.I. # 71, Batanian Dep. 9:3–21.

847. Chem-Mod's CEO testified in her deposition: "There was no specific words saying I'm giving – I'm granting you a license." Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 188:1-5.

Response: Undisputed. To clarify, Batanian is the president of Chem-Mod.

D.I. # 71, Batanian Dep. 9:3–21.

848. Chem-Mod's CEO testified in her deposition: "I assumed he agreed with me [that the Chem-Mod technology does not infringe the Oehr patent]." Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 192:7-25.

Response: Undisputed. To clarify, Batanian is the president of Chem-Mod.

D.I. # 71, Batanian Dep. 9:3–21.

849. Chem-Mod's CEO testified in her deposition: "Q: Did he ever say he agreed with you? A: I don't remember. I don't remember him using those words. Q: Did he ever say to you in writing or verbally that he agrees with you so he's going to back off this issue about the Oehr patent." Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 193:1-8.

Response: Undisputed. To clarify, Batanian is the president of Chem-Mod.

D.I. # 71, Batanian Dep. 9:3–21.

850. Chem-Mod's CEO testified in her deposition that any Nalco agreement not to assert the Oehr patent was never put in writing or in any agreement. Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 197:12-19.

Response: Disputed as unsupported and contrary to the evidence. The record shows that Nalco's agreement not to assert the '692 Patent was reflected in multiple writings, including presentation materials shown to potential Refined Coal facility hosts. D.I. # 64, Johnson Dep. 81:11–81:17, 149:7–184:7; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 93, June 11, 2014 email and attached Nevada Energy Presentation at NALC00289375; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 96, NIPSCO Presentation at NALC00039869; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 97, April 18, 2011 email and attached APS Presentation at NALC00040102; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 102, SRP Presentation at NALC00032040. Moreover, to clarify, Batanian is the president

of Chem-Mod. D.I. # 71, Batanian Dep. 9:3–21.

851. Chem-Mod’s CEO testified in her deposition that she did not tell Chem-Mod licensees that Chem-Mod had a license to the ’692 Patent verbally or in the only communication to the licensees with respect to the infringement suit. Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 229:14–23 & C. Klingman Supp. Decl. ¶ 21 (Exhibit 71) Exhibit 6 (CHEM-MOD00152924).

Objection: Pl. PFF ¶ 851 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph. Additionally, Pl. PFF ¶ 851 is vague and ambiguous. Plaintiffs have not defined “with respect to the infringement suit,” and it is not clear how the term is being used in this asserted fact.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the deposition transcript of Batanian at 229:14–23—does not support the asserted facts that Batanian testified as stated above, or that the document at CHEM-MOD_00152924 was the only communication to Chem-Mod’s licensees regarding Nalco’s claims of infringement. Moreover, to clarify, Batanian is the president of Chem-Mod. D.I. # 66, Batanian Dep. 9:3–21.

852.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

853.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

854.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

855. Nalco and Chem-Mod and/or AJG never finalized their business arrangement. Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 119:17-24.

Objection: Pl. PFF ¶ 855 is vague and ambiguous. Plaintiffs have not defined the terms “finalized” or “their business arrangement,” and it is not clear how the terms are being used in this asserted fact. Furthermore, Pl. PFF ¶ 855 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it recites Plaintiffs’ argument.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the deposition transcript of Batanian at 119:17–24—does not

support the asserted fact that Nalco and Chem-Mod and/or AJG never entered a business arrangement. In the cited portion of the transcript, Batanian is answering a question regarding whether Johnson of *Nalco* ever took a license to *Chem-Mod's* technology and paid for it. D.I. # 71, Batanian Dep. 118:7–119:15.

Batanian answers that “. . . we went all the way to the top management of the company, from what I understood, we did presentations and it was later not approved because [Nalco's management] were concerned about the timing of the investment and getting stuff placed in service on a timely basis.” D.I. # 71, Batanian Dep. 119:16–24. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

856. The only agreement entered into by AJG Coal, Inc. and Nalco was a “Consulting Agreement.” Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 204:22-25–205:1-4 & C. Klingman Supp. Decl. ¶ 20 (Exhibit 70)Exhibit 5 (CHEM-MOD00002075–84); Dkt. 64, Deposition of David Johnson, February 26, 2019, pg. 329:15-24–330:1-3.

Objection: Pl. PFF ¶ 856 is vague and ambiguous. Plaintiffs have not defined “agreement,” and it is not clear how the term is being used in this asserted fact.

Furthermore, Pl. PFF ¶ 856 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs’ argument.

Response: Disputed in part. Defendants dispute that the Consulting Agreement was the only agreement entered into by AJG Coal, Inc. and Nalco.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

857. Chem-Mod’s CEO testified regarding the Consulting Agreement:

Q: But do you recall in here whether there was ever a license granted by Nalco to Chem-Mod under the Oehr patent?

A: Under this agreement? Q: Uh-huh.

A: I – I don’t recall that being in here.

Q: Would you expect there to be one?

A: Not in this agreement.

Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 204:22-25–205:1-4 & C. Klingman Supp. Decl. ¶ 20 (Exhibit 70) Exhibit 5 (CHEM-MOD00002075–84).

Response: Disputed in part as unsupported. Plaintiffs’ cited evidence—the deposition transcript of Batanian at 204:22–205:4—does not support the asserted fact that Batanian was Chem-Mod’s “CEO.” Additionally, to the extent the cited testimony is offered to prove whether the Consulting Agreement contained a license to the ’692 Patent, the evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

858. Prior to its discussion with Nalco in 2011, there were a number of Refined Coal facilities already in operation. Dkt. 71, Deposition of Sally Batanian, February 20, 2019, pg. 35:17-20; 46:4-13; 219:13-15.

Objection: Pl. PFF ¶ 858 is vague and ambiguous. Plaintiffs have not defined “its discussion” or “Refined Coal facilities,” and it is not clear how the terms are being used in this asserted fact.

Response: Disputed in part as unsupported. Plaintiffs’ cited evidence—the deposition transcript of Batanian at 35:17–20, 46:4–13, 219:13–15—does not support the asserted fact that “[p]rior to its discussion with Nalco in 2011,” there were a number of Refined Coal facilities already in operation. Undisputed that

there were a number of Refined Coal facilities in operation prior to 2011.

859.

[REDACTED]

[REDACTED]

[REDACTED]

860. Defendants have asserted the defense of equitable estoppel. Dkt. 54, Defendants' Answer to Plaintiffs' Second Amended Complaint, ¶¶ 172-179.

Response: Undisputed.

861. In their supplemental interrogatory responses, the Defendants provided a list of activities by Plaintiffs they believe constitute "misleading conduct," demonstrating that Plaintiffs did not intend to enforce the '692 Patent against the Chem-Mod Process. C. Klingman Decl. ¶¶ 44 & 45 (Exhibit 43 & 44), pgs. 29-33.

Response: Undisputed to the extent "Chem-Mod Process" has the meaning understood in Pl. PFF ¶ 19.

862. Defendants state in their initial and supplementary interrogatory responses reasons supporting their "reliance" and "prejudice" positions with respect to their equitable estoppel affirmative defense. C. Klingman Decl. ¶¶ 44 & 45 (Exhibit 43 & 44), pgs. 22-23 & 29-31.

Response: Undisputed.

863. Multiple arguments appearing in Defendants' Supplemental Responses to Plaintiffs' First Set of Interrogatories were not pled in Defendants' Answer. *Compare* Dkt. 54, Defendants' Answer to Plaintiffs' Second Amended Complaint, ¶¶ 172-179 to C. Klingman Decl. ¶ 45 (Exhibit 44, pgs. 22-23 & 29-31).

Objection: Pl. PFF ¶ 863 is vague and ambiguous. Plaintiffs have not defined the term "arguments," and it is not clear how the term is being used in this asserted fact. Furthermore, Pl. PFF ¶ 863 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs' argument.

Response: Undisputed. Defendants were under no obligation to plead each "argument" in their Answer. *Reed v. Columbia St. Mary's Hosp.*, 915 F.3d 473, 478, 2019 WL 494073 (7th Cir. 2019). There is no dispute that Defendants pleaded the defense of equitable estoppel. D.I. # 108, Pl. PFF ¶ 860. Defendants have provided Plaintiffs with timely notice detailing the basis for defenses and affirmative defenses in the Supplemental Responses to Plaintiffs' First Set of Interrogatories. D.I. # 104, Klingman Decl. Ex. 44.

864. To date, Defendants have refused to provide a 30(b)(6) witness on their equitable estoppel defenses. C. Klingman Decl. ¶ 51 & 52 (Exhibits 50 & 51) (Letter from Kremer to Cross, December 28, 2010) & (E-Mail from Amanda First to Caryn Cross, January 24, 2019).

Objection: Pl. PFF ¶ 864 is vague and ambiguous. Plaintiffs have not defined "refused," and it is not clear how the term is being used in this asserted fact. Additionally, Pl. PFF ¶ 864 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it simply recites Plaintiffs' argument, rather than a factual assertion.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs'

cited evidence—correspondence from Defendants’ counsel to Plaintiffs’ counsel—does not support the asserted fact that Defendants have “refused to provide” a Rule 30(b)(6) witness “on their equitable estoppel defenses.”

Moreover, the record shows that Defendant Portage has already produced Rule 30(b)(6) designees on multiple topics relevant to the defense, including:

- “All bases for the defenses asserted . . . , including . . . equitable estoppel”;
- “[A]ny facts, persons, or documents that are relevant to contentions by Defendants in this case that Plaintiffs’ claims for infringement are barred or inhibited by . . . equitable estoppel”;
- “Any interactions between [Portage] and Nalco”;
- “Communications between [Portage] and any third-party relating to . . . the ’692 Patent[] or any Plaintiff”;
- “Any payments made by [Portage] to carry out any other process for mercury removal, other than the Chem-Mod Process”;
- “Any licenses, contracts, agreements, or assignments . . . related to any process or mechanism for removing any contaminate or pollutant from emissions from [Columbia Energy Center Unit 1]”;
- “[Portage’s] knowledge of the Patent-in-Suit at any time”; and
- “The identity of the persons most knowledge about each of” each noticed Rule 30(b)(6) topic.

Moreover, the record shows that Defendant WPL has already produced Rule 30(b)(6) designees on multiple topics relevant to the defense, including:

- “[A]ny interactions between [WPL] and Nalco,”
- “[c]ommunications between [WPL] and any third-party relating to . . . the ’692 Patent[] or any Plaintiff,”
- “[A]ny payments made by [WPL] to carry out any other process for mercury removal, other than the Chem-Mod Process,”
- “[A]ny licenses, contracts, agreements, or assignments . . . related to any process or mechanism for removing any contaminate or pollutant from emissions from [Columbia Energy Center Unit 1],”

- “[WPL’s] knowledge of the Patent-in-Suit at any time,” and
- “[T]he identity of the persons most knowledgeable about each of the” noticed Rule 30(b)(6) topics.

Mark Decl. (May 14, 2019) Ex. 225, WPL’s Objections and Responses to Plaintiffs’ 30(b)(6) Notice (Dec. 1, 2018); Mark Decl. (May 14, 2019) Ex. 234, Portage’s Objections and Responses to Plaintiffs’ 30(b)(6) Notice (Dec. 1, 2018), D.I. # 70, Panczak Dep. 325:2–14; D.I. # 62, Berkimer Dep. 25:17–26:2; D.I. # 66, Lokenvitz Dep. 11:14–14:1; D.I. # 73, Whittaker Dep. 47:18–59:10, 181:15–182:11, ; D.I. # 68, Niebuhr Dep. 7:17–24.

865. On April 8, 2014 Nalco sued Chem-Mod and certain affiliates to enforce the ’692 Patent against the Chem-Mod Process, alleging that use of the Chem-Mod Process infringed the ’692 Patent. *See Nalco Company v. Chem-Mod LLC*, Civil Action No. 1:14-cv-02510 (N.D. Ill. April 8, 2014); C. Klingman Decl. ¶ 22 (Exhibit 21) (First Complaint in ND IL).

Objection: Pl. PFF ¶ 865 is vague and ambiguous. Plaintiffs have not defined “certain affiliates,” and it is not clear how the term is being used in this asserted fact. Additionally, Pl. PFF ¶ 865 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Sec. I.B.6, because it recites Plaintiffs’ argument. Finally, Pl. PFF ¶ 865 is duplicative of Pl. PFF ¶ 170.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs’ cited evidence—the original complaint from the Northern District of Illinois suit—does not support the asserted fact that Nalco sued “certain affiliates” of Chem-Mod. Moreover, the record shows that on April 8, 2014, Nalco sued

Chem-Mod LLC alone. D.I. # 99, Klingman Decl. Ex. 21.

866. The Northern District of Illinois suit, inclusive of its appeal to the Federal Circuit, was pending until February 27, 2018 (the Federal Circuit reversal opinion), with the mandate issuing on April 5, 2018. C. Klingman Decl. ¶¶ 27 & 28 (Exhibits 26 & 27).

Objection: Pl. PFF ¶ 866 is vague and ambiguous. Plaintiffs have not defined “pending,” and it is not clear how the term is being used in this asserted fact. Additionally, Pl. PFF ¶ 866 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed in part. Defendants dispute that the Northern District of Illinois suit was “pending” until February 27, 2018. Rather, the record shows that Nalco’s complaint was dismissed with prejudice on April 20, 2016; that Nalco’s motion for reconsideration was denied on September 14, 2016; and that Nalco did not file a notice of appeal until October 12, 2016. D.I. # 99, Klingman Decl. Ex. 24; D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 129, Order Denying Motion for Reconsideration, *Nalco Company v. Chem-Mod LLC*, 1:14–CV–02510, D.I. # 136 (N.D. Ill. Sept. 14, 2016); D.I. # 95, Mark Decl. (Apr. 16, 2019) Ex. 130, Notice of Appeal, *Nalco Company v. Chem-Mod LLC*, 1:14–CV–02510, D.I. # 138 (N.D. Ill. Oct. 12, 2016)). Undisputed that the Federal Circuit mandate issued on April 5, 2018 and was voluntarily dismissed on April 19, 2018.

867. Defendants began implementing the Chem-Mod Process at Columbia Energy Center Unit 1 on or about September 2016. C. Klingman Decl. ¶ 45 (Exhibit 44), pg. 9.

Objection: Pl. PFF ¶ 867 is vague and ambiguous. Plaintiffs have not defined

the term “implementing,” and it is not clear how the term is being used in this asserted fact.

Response: Disputed as unsupported. To clarify, Defendants did not begin preparations to perform the Chem-Mod Process, as defined in Pl. PFF ¶ 19, until September 2016.

868. The Defendants here were aware of the Northern District of Illinois Suit. Dkt. 71, Deposition of Sally Batanian, February 20, 2019, C. Klingman Supp. Decl. ¶ 21 (Exhibit 71) Exhibit 6 (CHEM-MOD00152924–928).

Objection: Pl. PFF ¶ 868 is vague and ambiguous as to time. Additionally, Pl. PFF ¶ 868 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located, and Sec. I.B.6, because it recites Plaintiffs’ argument.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—a “[s]tatement Regarding *Nalco v. Chem Mod*”—does not support the asserted fact that each Defendant in this action was aware of the Northern District of Illinois Suit at any particular time. Furthermore, Batanian does not have the personal foundation to say whether any individual was “aware of the Northern District of Illinois Suit” or whether any corporation was “aware of the Northern District of Illinois Suit.”

869. Defendants also alleged as an affirmative defense a lack of subject matter jurisdiction. Dkt. 54, Defendants’ Answer to Plaintiffs’ Second Amended Complaint, ¶¶ 167-69.

Response: Undisputed.

870. Hazelmere is, and was at the time of the original complaint, the sole owner of the ’692 Patent. Dkt. 40, Plaintiffs’ Proof Standing; Dkt. 38, Plaintiffs’ Second Amended Complaint, ¶ 11.

Response: Undisputed.

871.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

872.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

873.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

874.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

875.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

876. Nalco is the exclusive licensee of the '692 Patent. Dkt. 40, Plaintiffs' Proof

Standing.

Objection: Pl. PFF ¶ 876 is vague and ambiguous. Plaintiffs have not defined “exclusive license,” and it is not clear how the term is being used in this asserted fact.

Response: Disputed. Defendants dispute that Nalco has an enforceable exclusive license to the '692 Patent. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

877. Hazeltmer was added as a plaintiff in this litigation in the Second Amended Complaint, which was filed on July 16, 2018. *See generally* Dkt. 38, Plaintiffs’ Second Amended Complaint.

Response: Undisputed.

Dated: May 14, 2019

/s/ Kristin Graham Noel

Kristin Graham Noel
Anita Boor
Quarles & Brady LLP
33 East Main Street
Suite 900
Madison, WI 53703
Telephone: 608.251.5000
Facsimile: 608.251.9166

Richard W. Mark
Joseph Evall
Paul J. Kremer
Gibson, Dunn & Crutcher LLP
200 Park Avenue
New York, NY 10166-0193
Telephone: 212.351.4000
Facsimile: 212.351.4035

Attorneys for Defendants

CERTIFICATE OF SERVICE

I hereby certify that on May 14, 2019, I caused to be electronically filed the foregoing document with the Clerk of Court using the Court's CM/ECF system, which will send notification of such filing to all counsel of record.

/s/ Kristin Graham Noel
Kristin Graham Noel